State of Rhode Island
and
Providence Plantations

Division of Emergency Medical Services

Prehospital Care Protocols and Standing Orders

EFFECTIVE MARCH 1, 2008

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State of Rhode Island and Providence Plantations
Department of Health

Safe and Healthy Lives in Safe and Healthy Communities

State of Rhode Island and Providence Plantations
Department of Health, Division of Emergency Medical Services

These protocols and standing orders are established by the Division of Emergency Medical Services of the Rhode Island Department of Health, and the Rhode Island Ambulance Service Advisory Board, pursuant to the authority conferred under sections, 23-4. 1-4 and 23-17.6-4 of the Rhode Island General Laws.

These protocols and standing orders shall supersede all protocols and standing orders previously established and promulgated by the Division of Emergency Medical Services of the Rhode Island Department of Health or the Rhode Island Ambulance Service Coordinating Board.

Contains all protocols effective March 1, 2008

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Instructions for Use of the Protocols

• *Levels of care*

Except as specifically indicated, each protocol represents the standard of care that applies to **all EMTs.** In general, each protocol begins with **basic** assessment and treatment measures required of **all levels** of prehospital personnel. In addition, there may be **advanced** care practices specified for "**ALS personnel**". A *double-bordered box* surrounds measures specific to the practice of an EMT-C or an EMT-P, as shown in the example below:

▼ ***ALS PERSONNEL***	
7. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*	*Monitor ECG*

Although most of the standards are intended for all EMTs, some entire protocols apply exclusively to ALS personnel. These are indicated by a title that includes [ALS]. In addition, a few measures are specific to the practice of EMT-Ps. Such practices are indicated by "***EMT-Ps only***", as shown in the example below:

7. ***EMT-Ps only***: Consider transcutaneous pacing, if available.	*(External Pacing)*

• *Consent*

A patient has the right to decide whether to consent to care or to refuse care. Under ordinary circumstances, the health care provider will inform the patient of the need for recommended care, and the possible risks to health if care is not provided. This enables the patient to make an informed decision to consent to, or to refuse, the recommended care. However, when EMTs recognize that a life-threatening medical emergency exists, they ordinarily start to treat the patient immediately, unless the patient actually refuses care. This "implied consent" permits prompt care to be delivered, without the time-consuming discussion required for the patient to make an informed decision.

Therefore, the first steps of the protocol for *Standard Management of All Patients* direct the EMT to secure a safe scene and "perform a primary survey, to identify and treat life-threatening problems", without requiring the EMT to obtain the patent's informed consent. For life-threatening emergencies, this directive applies to all patients. Further steps in the protocol direct the EMT to perform specified assessments, and to provide care following the protocols. With the exception of life-threatening emergencies, the protocols also direct the EMT to obtain valid consent (through contact with a parent or Medical Control) for further prehospital care and transportation of patients less than sixteen years of age.

• *Care of Pediatric Patients*

Throughout these protocols, whenever the care of **pediatric patients** differs from the care of adults (or requires special attention), the steps specific to pediatric management are identified by the national EMS for Children (EMS-C) logo and surrounded by a *box,* as shown in the example below. There are also a few protocols that apply only to pediatric patients. These are indicated by a title that includes the EMS-C logo and (Pediatric).

	9.3.2	Pediatric patients <5 feet tall (<35 kg/75 lbs): shock at 4 joules/kg (~2 joules/lb).	*4 joules/kg*

• *Combining Protocols*

There are many occasions when care must be guided by more than one protocol. EMTs are expected to use common sense and reasonable judgement to apply more than one protocol in the care of a patient, and to begin at an appropriate step when switching among protocols or utilizing more than one.

• *Medical Control*

All patient care protocols require EMTs to "contact medical control" during prehospital care. Unless the communication is a routine pre-arrival ***notification***, direct voice contact between the EMT and physician is required. In the rare circumstance in which direct access to a physician is not feasible, communication may be relayed *through a licensed health care professional.*

In addition to the standing orders for EMTs, many protocols provide suggested treatment measures that the Medical Control physician may choose to order. EMTs are expected to provide further care consistent with the verbal orders issued by the Medical Control physician, including treatment, medications, or dosages that differ from the measures suggested in the protocols. As always, EMTs are expected to provide care that is permitted by their education, training, and scope of practice, and to use common sense and reasonable judgement in following Medical Control direction.

• *Quick Reference notes*

Along the right edge of many protocols is a ***Quick Reference*** column. The brief notes in this area are intended to provide a rapid reminder for the field EMT, or a studying aid for those who are learning the protocols. Refer to the example below:

TREATMENT	***Quick Reference***
1. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.	*Physical Exam & Vital Signs*

Standard Management of All Patients

1. Respond to the scene in a safe manner.

   1.1 Using information available from the dispatcher, consider scene safety and initiate pre-arrival assessment and treatment of the patient.
   1.2 Use lights and sirens as may be necessary on the way to the scene of an emergency, whether critical or unknown, or when transporting an emergency patient.
   1.3 Use the National Incident Management System / Incident Command System for all responses and scene management, using communications systems and other resources as indicated to establish and maintain safe and efficient operations.
   1.4 Approach the scene cautiously, and assess scene safety
   1.5 If a hazard is identified, request assistance and maintain safety through appropriate measures including Personal Protective Equipment (PPE) as indicated.

2. Secure the scene and ensure that it is safe.

   2.1 Non-latex gloves and proper size N95 mask (or better) are required for assessment and care of all patients with possible infectious disease.
   2.2 Refer to *Major Incident* protocol if patient area is determined to be hazardous.

3. Determine the number of patients/potential patients.

      3.1.1 Determine whether the *Major Incident* protocol applies
      3.1.2 Determine whether the *Comfort One* protocol applies.
      3.1.3 Determine whether the *Biological Death* protocol applies.
      3.1.4 A pediatric patient is one who is less than 16 years of age. Determine whether adult or pediatric protocols and standards apply.
   3.2 Consider mechanism(s) of injury.
   3.3 Request assistance, as necessary.

4. Perform an initial assessment to identify and treat life-threatening problems.

   4.1 Follow all appropriate *RI* EMS *Prehospital Care Protocols and Standing Orders* to identify and treat life-threatening and critical conditions.

5. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

   5.1 Follow all appropriate *RI EMS Prehospital Care Protocols and Standing Orders* to perform the following:
      5.1.1 appropriate physical examination and medical history
      5.1.2 assessment of vital signs (including respiratory rate, heart rate, and blood pressure), with frequent monitoring and/or reassessment.

5.1.2.1 Abnormal vital signs for children and adults are shown in the table below.

Abnormal Vital Signs

Age	Respiratory Rate		Heart Rate		Systolic BP	
	Too Slow	*Too Fast*	*Too Slow*	*Too Fast*	*Too Low*	*Note: absent radial pulse indicates hypotension*
Newborn (birth –1month)	<30	>80	<100	>200	<40	
Infant (1 month – 1yr)	<20	>70	<80	>180	<60	
Preschool (1-6 years)	<16	>40	<70	>160	<75	
School Age (6-12 years)	<12	>30	<60	>140	<85	
Adolescent (12 – 16 years)	<10	>24	<60	>120	<90	
Adult (≥16 years)	<10	>24	<60	>120	<90	

5.1.2.2 Core temperature measurement and regulation should be considered while caring for pediatric patients. Attempt to measure the temperature of any pediatric patient who may have a fever, cold exposure, or seizure. Pediatric patients, especially newborns, easily lose heat. Covering the head, heating the patient compartment, and using warmed IV fluids increase or maintain body temperature.

5.1.2.2 Use patient monitoring equipment, such as pulse oximeter and ECG monitor, if available.

6. Provide treatment, stabilizing or supportive care

6.1 Follow all appropriate *RI EMS Prehospital Care Protocols and Standing Orders* to provide indicated treatment and psychological support.

6.2 If a person who is (or appears to be) <16 years old presents to EMS personnel with condition(s) that may reasonably require prehospital care and/or care at a HOSPITAL EMERGENCY FACILITY, EMTs are to attempt to contact the child's legal guardian in order to obtain the guardian's informed consent to prehospital care and/or transportation of the child. Balance such efforts with need for treatment and/or transport given patient condition.

6.2.1 If unable to contact the legal guardian, or if child abuse or neglect is suspected, contact Medical Control for authorization to provide prehospital care and transportation, and request assistance from local or state police (per section 40-11-5 RIGL).

6.2.2 If child abuse or neglect is suspected, transfer the child to the care of HOSPITAL EMERGENCY FACILITY, personnel; then notify the Rhode Island Department for Children, Youth and their Families (1-800-RI-CHILD), as required by section 40-11-3 RIGL

6.3 For pediatric patients up to 5 feet tall (<35kg / 75lbs), use a pediatric dosing device approved by the Division of EMS to estimate patient weight; to determine appropriate equipment sizes; and to determine pre-calculated doses for most medications to be administered under standing orders.

6.3.1 Use adult protocols and standards for any pediatric patients beyond the range of the tape (>5 feet tall or >35kg / 75lbs)

6.3.2 For small infants who weight <3kg / 6.5lbs, ***EMTs*** who are trained and licensed/certified by the RI Department of Health to perform endotracheal intubation are to use the following guidelines:

Approximate Weight	*Gestational Age*	*ET Tube Size*
<1500 grams (<3.5lbs)	<30 weeks	2.5mm
1500-2500 grams (3.5-5.5lbs)	30-36 weeks	3.0mm
>2500 grams (>5.5lbs)	>36 weeks	3.5mm

6.3.3 For the few medications not included on a pediatric dosing device, and in case the tape is unavailable, pediatric drug dosages may be calculated using the patient's weight. IV admixtures and infusion rates may be calculated using the appropriate "Pediatric Rule of Sixes" (the formulas on which a pediatric dosing device is based).

6.3.3.1 When necessary, the weight of a pediatric patient may be estimated, using the method shown below:

Weight (in kilograms) ≈ 2 x age (in years) + 8
Example: Estimated weight of 4 year old: (2x4)+8 ≈ 8+8 = 16 kilograms

6.3.3.2 Estimated weight may then be used in the "Pediatric Rule of Sixes", as follows:

Pediatric Rule of Sixes for DOPAMINE

mg to mix with **NORMAL SALINE** for a total volume of 100 mL = 6 x weight (kilograms)

Administration rate of 1 mL/hour = 1mcg/kg/min

Example: Preparation of a **DOPAMINE** infusion for 4 year old patient.

Weight of 4 year old? weight ≈ (2x4)+8 = 16 kg

mg of **DOPAMINE** to mix with normal saline ≈ 16kg x 6 = **96** mg

Inject **96** mg **DOPAMINE** (2.4 mL of a 40mg/mL solution) into 100 mL burette. Fill burette to 100 mL with **NORMAL SALINE**. Infusion rate of 5-20 mL/hour ≈ 5-20 mcg/kg/min.

7. Communicate with Medical Control.

7.1 When the *State of Rhode Island Prehospital Care Protocols and Standing Orders* require the EMT to "contact Medical Control," such "contact" is to be either **consultation** or **notification,** as differentiated below.

7.1.1 **Consultation** with Medical Control: **Direct voice contact between the EMT and physician is required.** In the rare circumstance in which direct access to a physician is not feasible, communication may be relayed *through a licensed health care professional*. In a Major Incident, communication between designated leadership at the scene and receiving hospitals may replace communication between the individual EMT and Medical Control for each patient and may result in orders for a group of patients.

7.1.1.1 ***All EMTs*** are **permitted** to consult directly with Medical Control physician at any time they feel such communication might be helpful in the care of a patient.

7.1.1.2 ***All EMTs*** are **required** to consult directly with a Medical Control physician when caring for any patient whose condition includes any of the following:

(a) impaired consciousness;
(b) any age-related abnormal heart rate, respiratory rate, or blood pressure, as defined in the Table of Abnormal Vital Signs;
(c) poisoning or overdose
(d) deterioration from a previously stable condition.

7.1.1.3 For any direct **consultation**, the EMT shall:

7.1.1.3.1 Request Medical Control;
7.1.1.3.2 Communicate directly with a designated Medical Control physician;

7.1.1.3.3 provide a brief report that includes at least the following:
(a) EMS unit identification and level (BLS and ALS)
(b) patient's sex, approximate age and weight
(c) a statement of the chief complaint or apparent problem(s)
(d) a brief history of the present illness or injury
(e) a brief summary of the patient's relevant medical history
(f) a report of the physical assessment, including vital and diagnostic signs
(g) a summary of prehospital care provided
(h) an estimated time until arrival

7.2. **Notification** of Medical Control

7.2.1 Many cases require only routine assessment, treatment, and transportation. For cases that meet **all** of the following criteria, direct consultation with a Medical Control physician is not required, and once en route the EMT may alternatively **notify** the **destination hospital staff** of the nature of the case and estimated time until arrival:
(a) the patient is fully conscious; and
(b) the patient has no age-related abnormal vital or diagnostic signs; and
(c) the patient's condition does not include poisoning or overdose; and
(d) the patient has not deteriorated from a previously stable condition.

7.2.2 EMT responsible for such **notification** shall:

7.2.2.1 indicate that the contact is for notification;

7.2.2.2 communicate directly with the triage nurse or designated health care provider; and

7.2.2.3 provide a brief summary report that includes at least the following:

(a) EMS unit identification and level (BLS and ALS)

(b) patient's sex, approximate age, and approximate weight

(c) a statement of the chief complaint or apparent problem(s)

(d) a statement that the patient's vital signs are within normal age-related limits

(e) a summary of pre-hospital care provided

(f) an estimated time until arrival

8. Follow all appropriate *RI EMS Prehospital Care Protocols and Standing Orders* to transport the patient without delay to the appropriate *HOSPITAL or NON-HOSPITAL EMERGENCY FACILITY*, except as specified below.

8.1 In a Major Incident, transport to a Department of Health designated alternative facility or location as directed.

8.2 Transport all patients in cardiac arrest, respiratory arrest, or respiratory failure to the **nearest** *HOSPITAL EMERGENCY FACILITY* **,** unless specifically directed to another destination by Medical Control

8.3 For all patients with unrelieved airway obstruction, contact Medical Control for guidance. Medical Control may direct transport to the **nearest** *HOSPITAL or NON-HOSPITAL EMERGENCY FACILITY* .

8.4 The signs and symptoms of pediatric patients developing serious illness or injury are often subtle. Therefore, ***all EMTs*** are required to transport all pediatric patients to a *HOSPITAL EMERGENCY FACILITY* for further evaluation, except as specified below:

8.4.1 An informed refusal of EMS transport is provided by the patient (if ≥ 16 years of age, or married, as provided by section 23-4.6-1 RIGL), or on the patient's behalf by a legal guardian (if patient <16 years of age); or

8.4.2 Medical Control, in direct consultation with the EMT, specifically authorizes the EMT to release the patient; or

8.4.3 For all patients with unrelieved airway obstruction, contact Medical Control for guidance. Medical Control may direct transport to the **nearest** *HOSPITAL* or *NON-HOSPITAL EMERGENCY FACILITY*

8.5 ***All EMTs*** are required to transport patients in an appropriate restraint system including use of shoulder and transverse body belts. EMTs should use seatbelts during transport unless patient care prevents their use. All heavy items and equipment in the ambulance, such as monitors and oxygen bottles, should be adequately restrained during transport. For pediatric patients of appropriate age, this may be a child safety seat properly affixed to a seat or stretcher with the head section elevated unless:

8.5.1 care of the patient required immobilization of the spinal column, pelvis or lower extremities; or

8.5.2 the patient requires resuscitation or active management of a critical problem.

9 Attach an approved patient identification and tracking device to the patient, if available, any belongings transported with the patient, and the *RI EMS Ambulance Run Report*.

10. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Airway Management and Respiratory Support

RECOGNITION

Patients with decreased level of consciousness resulting in inability to protect the airway, increased or ineffective respiratory effort, hypoxia, respiratory arrest or other need for airway management. Airway obstruction, if suspected from history or efforts to ventilate, should be managed in conjunction with the Foreign Body Airway Obstruction protocol. Conditions causing need for airway management should be managed following all appropriate protocols.

TREATMENT

1. Provide initial airway management following the American Heart Association (AHA) BLS guidelines.

    1.1 If mild obstruction is present and the patient is coughing forcibly, do not interfere with the patient's spontaneous coughing and breathing efforts. Attempt to relieve the obstruction only if signs of severe obstruction develop: the cough becomes silent, respiratory difficulty increases and is accompanied by stridor, or the victim becomes unresponsive.

    1.2 Assume cervical spinal injury for all patients with sustained or suspected trauma, or impaired consciousness. In such cases stabilize the patient's head and cervical spine in the neutral position, and use the jaw-thrust maneuver without head-tilt.

    1.3 Insert an oropharyngeal airway or nasopharyngeal airway of the appropriate size as an airway maintenance adjunct.

        1.3.1 Attempt to insert a nasopharyngeal airway in patients who reject an oropharyngeal airway, unless contraindicated.

    1.4 Suction as necessary.

1.5 For pediatric patients <5 feet tall (<35kg/75lbs) who demonstrate respiratory distress from suspected upper airway swelling, administer **EPINEPHRINE** as indicated below. BLS personnel must contact Medical Control for authorization.

1.5.1 Administer **EPINEPHRINE** 5 mL of 1:1000 solution, by nebulizer over 5-15 minutes. May repeat once if necessary.

1.6 If airway obstruction by a foreign body is suspected, perform basic life support maneuvers according to AHA guidelines and follow the Foreign Body Airway Obstruction protocol.

1.7 If epiglottitis or another medical cause (croup, abcess, etc.) is suspected in a patient who remains conscious, allow the patient to chose a comfortable position and avoid painful or anxiety-provoking procedures if possible.

2 Provide **OXYGEN** to all patients with signs of serious illness or injury. Use the administration device and flow rate that provide the highest concentration of **OXYGEN** available, as tolerated by the patient.

2.3 Pediatric patients <5 feet tall (<35kg / 75lbs): Use of warmed, humidified **OXYGEN** is preferred, whenever possible.

3 Ventilate (or assist the ventilations of) any patient with ineffective or absent respirations. Use high-flow supplemental **OXYGEN,** and ventilate at the appropriate rate, as shown in the table that follows.

3.3 All patients: ventilate using one or more of the following devices of the proper size and settings for the patient age and weight:

3.3.1 Mouth-to-mask.

3.3.2 Bag-valve-mask (BVM) device capable of providing >75% oxygen concentration; 2-EMT technique preferred.

3.3.3 Ventilation device designed for use with a mask or advanced airway device.

Ventilation Guidelines

Age	Respiratory Rate		Ventilation (To Chest Rise)	Suggested Bag Size	Approx. Tidal Volume
	Too Slow	*Too Fast*	*BREATHS/MINUTE*		
Newborn (birth-1 month)	**<30**	**>80**	**40-60**	**Infant**	**50-100**
Infant (1 month – 1 year	**<20**	**>70**	**30-40**	**Infant**	**100-200**
Pre-School (1-6 years)	**<16**	**>40**	**20-30**	**Child**	**200-300**
School Age (6-12 years)	**<12**	**>30**	**16-20**	**Child**	**300-400**
Adolescent (12-16 years)	**<10**	**>24**	**12-16**	**Adult**	**400-500**
Adult (≥16 years)	**<10**	**>24**	**12-16**	**Adult**	**500-600**

4 EMTs trained and licensed/certified by the RI Department of Health to perform endotracheal intubation may attempt to intubate any patient > 1 month of age who is in respiratory or cardiac arrest:

4.1 ***EMT-Ps only*** may attempt to intubate a patient for any of the conditions listed below. Other qualified EMTs must contact Medical Control for authorization:

4.1.1 Respiratory distress with:

(a) bradycardia

(b) cyanosis despite supplemental oxygen

(c) impaired consciousness

4.1.2 To protect the airway in cases of deep unconsciousness, absent gag reflex, or impending airway obstruction.

4.1.3 Newborn infants (<1 month of age).

4.1.4 In other situations as authorized by Medical Control.

5 ***EMT-Ps only*** may attempt cricothyrotomy (surgical for patients ≥ 8 years of age; needle for patients <8 years of age) if instrumental removal of the foreign body is unsuccessful, or if unable to ventilate, following the *Cricothyrotomy* protocol.

6 Contact Medical Control.

7 Transport the patient.

7.1 Transport all patients in cardiac arrest, respiratory arrest, or respiratory failure to the **nearest** appropriate *HOSPITAL EMERGENCY FACILITY,* unless specifically directed to another destination by Medical Control.

7.2 For all patients with unrelieved airway obstruction contact Medical Control for guidance. Medical Control may direct transport to the **nearest** *HOSPITAL* or *NON-HOSPITAL EMERGENCY FACILITY.*

8 Document all incident information by completing the *RI EMS Ambulance Run Report*.

Biological Death

RECOGNITION OF BIOLOGICAL DEATH

1. An adult patient may be considered biologically dead if there is a lack of vital signs and at least one of the following:
   - 1.1 rigor mortis (rigid stiffness of the body)
   - 1.2 dependent lividity (purple/blue discoloration of those body areas closest to the ground)
   - 1.3 obvious injury incompatible with life (eg: decapitation)
   - 1.4 palpably cold body in the absence of any of the following:
     - 1.4.1 hypothermia from cold exposure
     - 1.4.2 cold water drowning
     - 1.4.3 drug overdose
   - 1.5 obvious changes of decomposition (ie: bloating, skin slippage, extensive green or black skin discoloration)

2. A pediatric patient may be considered biologically dead if there is a lack of vital signs and at least one of the following:
   - 2.1 obvious injury incompatible with life (eg: decapitation)
   - 2.2 obvious changes of decomposition (ie: bloating, skin slippage, extensive green or black skin discoloration)

3. By recognizing the evidence of lifelessness (as specified in RECOGNITION items 1 and 2 above) the EMS rescue personnel have made the ***determination*** of death. This ***determination*** by a licensed EMT does not constitute a ***pronouncement*** or certification of death, which are the responsibilities of a licensed physician.
4. The responsibility for a patient who is biologically dead lies with the state or local Police Department. Accordingly, the police should be contacted immediately. The Police Department is responsible for contacting the Medical Examiner's Office. The body should not be removed from the scene and the scene should be disturbed as little as possible.
5. Document all incident information by completing the *RI EMS Ambulance Run Report*.

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6. For patients who ***do not*** meet the criteria for biological death:
   - 6.1 Any adult patient who does not meet the criteria above for biological death should be considered alive and treated following the *Cardiac Arrest* protocol, and be transported to a *HOSPITAL EMERGENCY FACILITY*.

   - 6.2 Any pediatric patient without signs of life, including a newborn or potential SIDS fatality, who does not meet the criteria above for biological death should receive full resuscitative measures and be transported to a *HOSPITAL EMERGENCY FACILITY*.

6.3 For patients wearing a **COMFORT ONE** bracelet, follow the *Comfort One* protocol.

6.4 Transportation to a *HOSPITAL EMERGENCY FACILITY* is necessary only when resuscitation is undertaken. Follow the appropriate cardiac arrest protocol and contact Medical Control en route.

6.5. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Comfort One

INTRODUCTION

Advances in home health and hospice care have resulted in more chronically and terminally ill patients living in private residences or in nursing homes. Many of these patients do not wish to have CPR performed and have made formal **Living Will Declarations**; executed **Durable Power of Attorney** documents; or have a physician's **Do-Not-Resuscitate Order** recorded in their medical records.

LEGAL AUTHORITY

23.4.1 to 23-4.1-14 RIGL (*Emergency Medical Transportation Services*)

23-4.10 to 23-4.10-12 RIGL (*Health Care Power Of Attorney*)

23-4.11-2 to 23-4.11-14 RIGL (*Rights Of The Terminally Ill Act*)

PURPOSE

(1) To provide symptom control, patient care and comfort measures during the dying process for **COMFORT ONE** patients.

(2) To avoid resuscitation of patients who have **COMFORT ONE** status.

(3) To clarify the role and responsibilities of prehospital care providers at the scene and/or while providing transportation for **COMFORT ONE** patients.

DEFINITIONS

(1) The *COMFORT ONE* protocol is a set of standardized, state-wide patient care orders to be followed by emergency medical services personnel when encountering a **COMFORT ONE** patient. The protocol emphasizes that the patient will receive palliative, supportive care; but **no** resuscitative measures.

(2) A **COMFORT ONE** patient is a patient who:

2.1 has executed a **Living Will** and/or **Durable Power of Attorney**, and

2.2 has been diagnosed as having a terminal condition, and

2.3 has been issued a **COMFORT ONE** Bracelet.

2.4 This designation also applies to patients having a physician authorized **Do-Not-Resuscitate (DNR) Order** recorded in the patient's medical record or a DNR order received directly from a physician in compliance with the *Medical Control at the Emergency Scene* protocol.

APPLICATION

The *COMFORT ONE* protocol is applicable to emergency medical services personnel acting in the non-hospital setting.

ACTIVATION/IDENTIFICATION

1. The **COMFORT ONE** status of a patient is confirmed and this protocol is activated when prehospital personnel have been presented with:

1.1 A **COMFORT ONE** Bracelet on the patient (no further **COMFORT ONE** identification is necessary).

1.1.1 Determine that **COMFORT ONE** Bracelet is intact and not defaced or damaged. Location of bracelet: wrist or ankle; necklace if extremities not available (sealed and closed bracelet on necklace chain).

1.2 A written **Do-Not-Resuscitate Order** authorized by a physician and documented in the patient's medical record.

1.3 A **Do-Not-Resuscitate Order** received directly from a physician in compliance with the *Medical Control at an Emergency Scene* protocol may activate the *COMFORT ONE* protocol.

EMS PROVIDER ACTIONS

1. Proceed with usual patient assessment and care **including** resuscitative measures UNTIL **COMFORT ONE** status is confirmed.
2. Upon verification of **COMFORT ONE** status:
   - 2.1 **DO NOT:**
     - 2.1.1 initiate CPR
     - 2.1.2 administer chest compressions
     - 2.1.3 intubate (ET or EOA)
     - 2.1.4 initiate cardiac monitoring
     - 2.1.5 start an IV for resuscitation
     - 2.1.6 administer cardiac resuscitation drugs
     - 2.1.7 defibrillate
     - 2.1.8 provide ventilatory assistance
   - 2.2 **DO** (as indicated by the patient's condition):
     - 2.2.1 suction airway
     - 2.2.2 administer oxygen
     - 2.2.3 position for comfort
     - 2.2.4 splint
     - 2.2.5 control bleeding
     - 2.2.6 provide emotional support
     - 2.2.7 if possible, determine if **Hospice** or **Home Health Agency** patient and contact appropriate agency
     - 2.2.8 contact the patient's attending physician or Medical Control for further orders
3. If efforts are begun prior to confirmation of **COMFORT ONE** status, discontinue the resuscitative measures upon verification of **COMFORT ONE** status. EMS personnel will not continue:
   - 3.1 CPR
   - 3.2 ventilatory assistance
   - 3.3 administration of cardiac medications
   - 3.4 Do not initiate IV lines, EOA or Endotracheal Intubation.
     - 3.4.1 Note: established IV lines, EOA or ET tube should remain in place.

REVOCATION

1. BY THE **PATIENT**: Regardless of mental or physical condition, the patient may revoke his/her **COMFORT ONE** status by:
   - 1.1 Physical cancellation or destruction of the **COMFORT ONE** Bracelet by:
     - 1.1.1 the patient; or
     - 1.1.2 the patient's surrogate decision maker; or
     - 1.1.3 another in the patient's presence and at the patient's direction.
   - 1.2 Direct communication with the prehospital care provider or other licensed health care provider by:
     - 1.2.1 the patient; or
     - 1.2.2 the patient's surrogate decision maker; or
     - 1.2.3 another in the patient's presence and at the patient's direction.
   - 1.3 Direct communication with the prehospital care provider, physician or other licensed health care provider by any person who witnesses the revocation of **COMFORT ONE** status by a qualified patient.
     - 1.3.1 **A revocation communicated by family or by another who did not witness the revocation is not valid in the emergency or transport setting.**
2. BY A **PHYSICIAN**: A physician may revoke a **Do-Not-Resuscitate Order** by writing such a revocation in the patient's medical record, provided there is no **COMFORT ONE** Bracelet present.
3. BY **MEDICAL CONTROL**: A **Do-Not-Resuscitate Order** may be revoked directly by a physician in compliance with the *Medical Control at an Emergency Scene* protocol, provided there is no **COMFORT ONE** Bracelet present.
4. EMS personnel or other licensed health care providers, upon witnessing or verifying a **COMFORT ONE** revocation, must communicate that revocation in writing so as to include this information in the patient's medical record. For prehospital care providers, the revocation shall be documented on the standard *RI EMS Ambulance Run Report*.

DOCUMENTATION

1. The minimum **COMFORT ONE** ambulance/rescue report information shall include:
   - 1.1 use of a standard *RI EMS Ambulance Run Report*. Indicate the use of **COMFORT ONE** in the space allotted.
   - 1.2 patient's name, gender, estimated age
   - 1.3 attending physician
   - 1.4 **COMFORT ONE** identification seen. Document method of identification (**COMFORT ONE** Bracelet or **Do-Not-Resuscitate Order** per medical record) that was used to confirm **COMFORT ONE** status. Note that **COMFORT ONE** Bracelet was intact, not defaced, not canceled, or not officially revoked. Include the name of the patient's attending physician.
   - 1.5 time, date, location of event
   - 1.6 description of event
   - 1.7 assessment findings
   - 1.8 care provided
   - 1.9 any **COMFORT ONE** revocation directly witnessed by EMS personnel or communicated to EMS personnel by family, surrogate decision maker or another who witnessed the revocation

2. If transporting the patient, keep **COMFORT ONE** Bracelet (intact or removed) and/or *Interagency Referral Form* with the patient.
3. If **COMFORT ONE** order was issued per *Medical Control at the Emergency Scene* protocol, provide date and physician's name as well as other pertinent information per protocol.

INTERACTION WITH FAMILY/BYSTANDER

1. If family/bystanders request resuscitative efforts for a patient with **COMFORT ONE** status:
   - 1.1 Provide explanation, reassurance and support to family/bystanders.
   - 1.2 Do not initiate CPR.
   - 1.3 Provide palliative care and comfort to patient.
   - 1.4 If possible, determine if **Hospice** or **Home Health Agency** patient and contact appropriate agency.
   - 1.5 Contact Medical Control for guidance.

GENERAL CONSIDERATIONS

1. **COMFORT ONE** status means providing all possible comfort care. Treat both the patient and family with care and concern.
2. Consider **COMFORT ONE** status invalid if:
   - 2.1 No **COMFORT ONE** Bracelet is present.
   - 2.2 The **COMFORT ONE** Bracelet is not attached or has been tampered with.
   - 2.3 A written **Do-Not-Resuscitate Order** authorized by a physician and documented in the patient's medical record is not presented to prehospital care personnel.
3. If the patient has expired on arrival, comfort family and follow *Biological Death* protocol. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Cardiac Arrest Flowchart

Assess responsiveness, airway, breathing, and circulation

↓

Identify cardiac arrest

↓

CPR or Defibrillation

↓

Ventilate with high-concentration O_2
Consider advanced airway management

↓

BLS Units: Transport to nearest hospital ED or obtain ALS unit

↓

ALS Units: Follow appropriate protocols

↓

Contact Medical Control

↓

Document

Cardiac Arrest

TREATMENT

1. Quickly check for unresponsiveness, airway patency, spontaneous respirations, and carotid pulses.
2. If there is a cardio-pulmonary arrest, immediately begin the Basic Life Support (CPR) sequence of the American Heart Association.

2.1 ▼ ***BLS PERSONNEL***
If defibrillation is available and indicated, follow the *Defibrillation Procedure: Manual* or *Defibrillation Procedure: AED protocol.*

2.2 ▼ ***ALS PERSONNEL***
If defibrillation is available and indicated, follow the *Ventricular Fibrillation and Pulseless Ventricular Tachycardia (ALS) protocol.*

▼ ***ALL EMTs***

DO NOT INTERUPT CPR FOR MORE THAN 5 SECONDS EXCEPT FOR A MAXIMUM OF 30 SECONDS TO DEFIBRILLATE, MOVE THE PATIENT OR PERFORM ADVANCED AIRWAY TECHNIQUES WHEN INDICATED. IF SAFE PATIENT TRANSPORT WILL CAUSE DELAYS, PERFORM ALS INTERVENTIONS PRIOR TO PATIENT MOVMENT IF POSSIBLE.

3. CPR may be discontinued with authorization from a Medical Control physician.
4. Whenever possible, use high-concentration **OXYGEN** to ventilate the patient at the appropriate rate.
5. EMTs trained and licensed/certified by the RI Department of Health to perform endotracheal intubation may consider advanced airway management as indicated in the *Airway Management and Respiratory Support* protocol.

    4.1 Use oropharyngeal, nasopharyngeal airway adjuncts or an EOA if unable to perform endotracheal intubation.

6. Basic Life Support units should transport the patient without delay to the nearest appropriate *HOSPITAL EMERGENCY FACILITY* or consider use of an Advanced Life Support unit, if one is available.

▼ ***ALS PERSONNEL***

7. Follow all appropriate protocols

▼ ***ALL EMTs***

8. Contact Medical Control.
9. Document all incident information by completing the *RI EMS Ambulance Run Report*.

Asystole (ALS) Flowchart

CPR

↓

Identify asystole
Confirm pulselessness and asystole on ECG

↓

Ventilate with high-concentration **O_2**

↓

IV: NS or LR
Consider advanced airway management

↓

EPINEPHRINE every 3-5 min

↓

ATROPINE every 3-5 min

↓

Transport to hospital ED

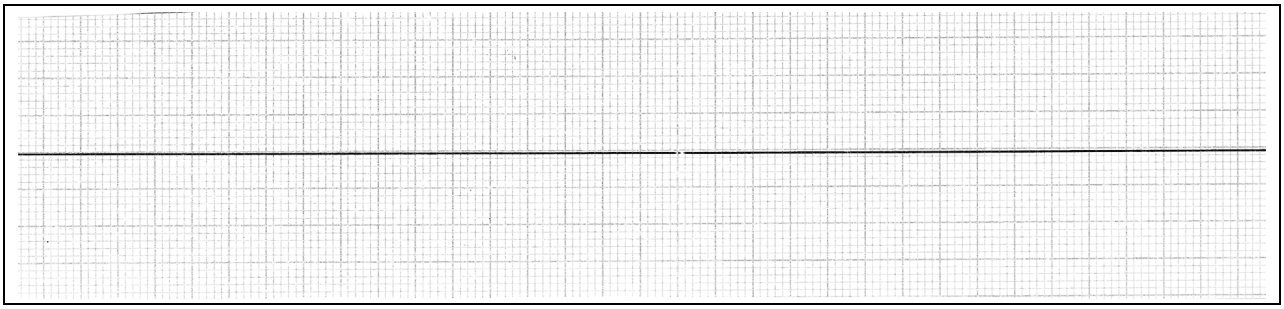
↓

Contact Medical Control

↓

Document

Asystole (ALS)



TREATMENT

1. Begin the Basic Life Support (CPR) sequence of the American Heart Association.
   1.1 Do not cease CPR for more than 5 seconds, except for a maximum of 30 seconds to intubate or move the patient, until the patient has been stabilized, or until authorized by Medical Control to do so.

2. For infants up to 1 month of age, follow the *Newborn Resuscitation* protocol.

3. Check the pulse. Follow the *Asystole* protocol only if the pulse is absent.

4. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

5. Check the leads and monitor to assure that the unit is functioning properly.

6. If rhythm is unclear and possibly low amplitude ventricular fibrillation, follow the *Ventricular Fibrillation* protocol.

7. Start at least one IV access of **NORMAL SALINE** or **LACTATED RINGER'S** solution:

   7.1 Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (~20 ml/hr).

   7.2 If unable to establish IV in 2 attempts or 5 minutes, continue CPR and transport the patient to the nearest HOSPITAL EMERGENCY FACILITY immediately. Any further attempt at IV placement must occur en route.

8 Consider advanced airway management. When using an endotracheal tube or using the esophageal obturator airway, follow the *ET* or *EOA* protocol.

8.1 Whenever possible, ventilate the patient at the appropriate rate, using high concentration **OXYGEN.**

9 Administer **EPINEPHRINE** as indicated below:

9.1 Adult patients: administer **EPINEPHRINE 1:10,000** 1.0 mg IV push; Repeat every 3-5 minutes if asystole persists.

9.1.1 If unable to establish an IV, administer **EPINEPHRINE 1:1,000** 2.0-2.5 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube, Repeat every 3-5 minutes if asystole persists.

9.2 Pediatric patients <5 feet (<35 kg/75 lbs): administer **EPINEPHRINE** as indicated on Pediatric Dosing Device, and repeat every 3-5 minutes as necessary:

9.2.1 IV Push Dose: **EPINEPHRINE 1:10,000** 0.01 mg/kg (0.1 mL/kg).

9.2.2 Endotracheal doses: **EPINEPHRINE 1:1,000** 0.1 mg/kg (0.1 mL/kg), diluted to 3-5 mL with **NORMAL SALINE.**

10 If still asystolic, administer **ATROPINE SULFATE** as indicated below:

10.1 Adult patients: administer **ATROPINE SULFATE** 1.0 mg IV push. Repeat every 3-5 minutes if asystole persists, to a maximum of 3.0 mg.

10.1.1 If unable to establish an IV, administer **ATROPINE SULFATE** 1-2 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube. Repeat every 3-5 minutes if asystole persists, to a maximum of 3.0 mg.

11 Transport the patient without delay to nearest appropriate *HOSPITAL EMERGENCY FACILITY.*

12 Contact Medical Control

12.1 With authorization from Medical Control, consider administration of **GLUCAGON**.

12.2 ***EMT-Ps only*** with authorization from Medical Control may consider administration of **CALCIUM CHLORIDE**.

13. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Bradycardia (Symptomatic) [ALS] Flowchart

Assess patient and obtain initial VS Reassess frequently

↓

High-concentration O_2

↓

Monitor and document ECG

↓

IV: NS or LR

↓

ATROPINE every 3-5 min

↓

Transport to hospital ED

↓

Consider transcutaneous pacing,

↓

EMT-Ps only: Consider **DOPAMINE** drip

↓

Contact Medical Control

↓

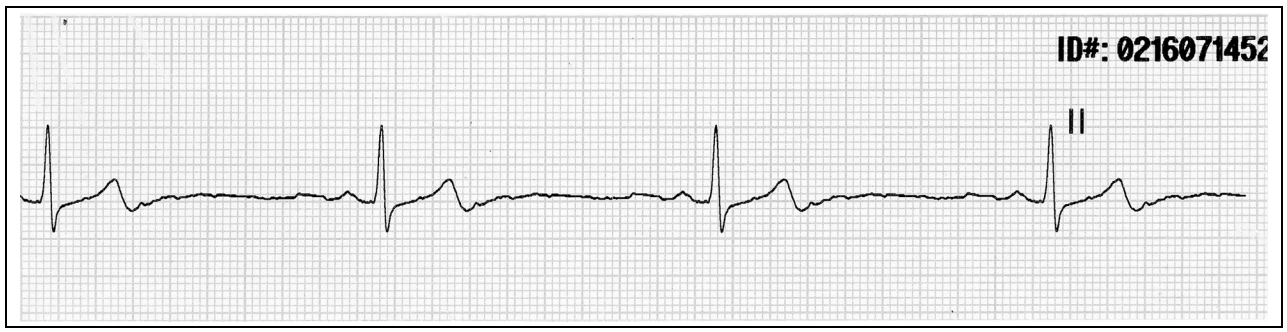
EMT-Cs: Per Med Control, **DOPAMINE** drip

↓

EMT-Ps only: Per Med Control, **EPINEPHRINE** drip

Bradycardia (Symptomatic) [ALS]

For pediatric patients< 5 feet tall (< 35 kg/ 75 lbs.) follow *Bradycardia (Pediatric)* protocol.



RECOGNITION

Ventricular rate <60 per minute in a suspected cardiac patient, with any of the following: chest pain; dyspnea; decreased level of consciousness; hypotension; shock; ventricular escape beats; or CHF.

TREATMENT

1. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

2. Loosen tight clothing and allow the patient to chose a comfortable position unless hypotensive. Hypotensive patients should be supine.

3. Administer **OXYGEN** with the highest-concentration device tolerated.

4. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

5. Start at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate (~20 mL/hour).

    5.1 If unable to establish an IV in 2 attempts or 5 minutes, transport the patient to *HOSPITAL EMERGENCY FACILITY.* Any further attempt at IV placement must occur en route.

6. Administer **ATROPINE SULFATE** 0.5mg IV push. Repeat every 3-5 minutes if symptomatic bradycardia persists, to a maximum of 3.0 mg.

    6.1 If unable to establish an IV and there is an endotracheal tube in place, administer **ATROPINE SULFATE** 1-2 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube. Repeat every 3-5 minutes if symptomatic bradycardia persists, to a maximum of 3.0 mg.

7. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

8. Consider use of either or both of the following:

   8.1 Perform transcutaneous pacing, if available. Consider sedation following *Pain Management* protocol.

   EMT-Ps only:

   8.2 Administer **DOPAMINE HCl** by IV infusion. Due to the high risk of side affects with incorrect dosage, **DOPAMINE** infusions may only be administered by IV Infusion Pump as indicated below:

      8.2.1 Administer **DOPAMINE HCl** at 2-20 mcg/kg/min IV (400 mg in 250 mL **D_5W** or **NORMAL SALINE** = 1600 mcg/mL) and titrate the rate to achieve a systolic blood pressure > 90mm Hg.

9. Contact Medical Control

   9.1 With authorization from Medical Control, ***EMT-Cs*** may administer **DOPAMINE HCL** by IV infusion. Due to the high risk of side affects with incorrect dosage, **DOPAMINE** infusions may only be administered by IV Infusion Pump as indicated below:

      9.1.1 Administer **DOPAMINE HCl** at 2-20 mcg/kg/min IV(400mg in 250 mL **D_5W** or **NORMAL SALINE** = 1600 mcg/mL) and titrate the rate to achieve a systolic blood pressure > 90 mm Hg.

   9.2 ***EMT-Ps only:*** With authorization form Medical Control, may administer **EPINEPHRINE** by IV infusion. Due to the high risk of side affects with incorrect dosage, **EPINEPHRINE** infusions may only be administered by IV Infusion Pump as indicated below:

   .

      9.2.1 Infuse **EPINEPHRINE** 0.05-0.20 mcg/kg/min. (Typical adult dose: 2-10mcg/min.).

10. Document all incident information by completing the *RI EMS Ambulance Run Report*

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Bradycardia (Pediatric) Flowchart

(For newborns, infants, refer to *Newborn Resuscitation* protocol)

↓

Assess patient; obtain initial VS /Treat shock, following *Shock* protocol

↓

Airway Management
High-concentration O_2, Assist with BVM

↓

Consider advanced airway management

↓

HR ≥60: BVM or supplemental O_2
HR <60 with shock: CPR _ HR ≥60

↓

Monitor and document S_pO_2 (if able) and ECG

↓

IV: NS or LR

↓

EPINEPHRINE every 3-5 min

↓

Consider **ATROPINE** every 3-5 min

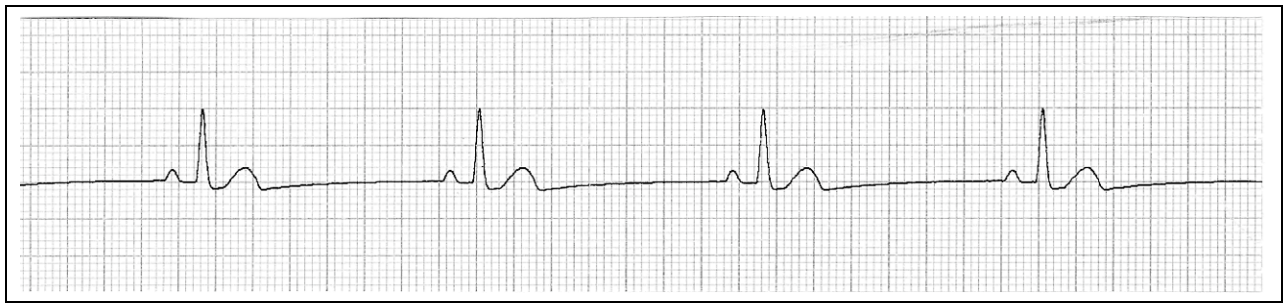
↓

Consider transcutaneous pacing

↓

Contact Medical Control

Bradycardia (Pediatric)



RECOGNITION

A slow ventricular rate (as shown in the following table) accompanied by any of the following: chest pain; respiratory distress; decreased level of consciousness; hypotension; shock; CHF.

Note: Pediatric bradycardia is usually due to hypoxemia.

Age	Respiratory Rate		Heart Rate		Systolic BP	
	Too Slow	*Too Fast*	*Too Slow*	*Too Fast*	*Too Low*	NOTE: absent radial pulse suggests hypotension
Newborn (birth-1month)	<30	>80	<100	>200	<40	
Infant (1 month – 1 year)	<20	>70	<80	>180	<60	
Pre-School (1-6 years)	<16	>40	<70	>160	<75	
School Age (6-12 years)	<12	>30	<60	>140	<85	
Adolescent (12-16 years)	<10	>24	<60	>120	<90	

TREATMENT

1. For newborn infants, refer to the *Newborn Resuscitation* protocol.

2. Perform a rapid exam, including assessment of the following:

   a. Level of consciousness/responsiveness, airway maintenance;
   b. Respiratory rate and effort, skin/mucous membrane color;
   c. Heart rate, distal pulses, temperature, capillary refill, BP.

3. If there is evidence of shock, follow the *Shock* protocol.

4. Administer **OXYGEN** with the highest-concentration device tolerated.

   4.1 Children with impaired consciousness, cyanosis, or signs of shock require assisted ventilations with high-concentration **OXYGEN** and airway adjuncts.

      4.1.1 Consider advanced airway management, as indicated in the *Airway Management and Respiratory Support protocol.*

4.2 Whenever possible, use high-concentration oxygen to ventilate the patient at the appropriate rate shown in the following table:

Ventilation Guidelines

	Age	Ventilation
		BREATHS/MINUTE
Newborn	**(birth – 1 month)**	**-60**
Infant	**(1 month – 1 year)**	**-45**
Pre-School	**(1-6 years)**	**-45**
School Age	**(6 – 12 years)**	**-30**
Adolescent	**(12 – 16 years)**	**-30**

5. Re-evaluate heart rate (monitor ECG, if able).

5.1 If heart rate is ≥60/minute, continue assisted ventilations and/or resuscitation as needed for breathing (i.e., BVM ventilations or supplemental **OXYGEN**).

5.2 If heart rate is <60/minute and there is evidence of shock despite supplemental oxygenation and ventilation, perform chest compressions at rate of at least 100/minute (infants <1year old) or 80-100/minute (children ≥ 1 year old). Continue CPR until spontaneous heart rate ≥60/minute.

6. Monitor patient's oxygen saturation, if pulse oximeter is available.

▼ ***ALS PERSONNEL***

7. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

8. Establish at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution at keep vein open rate (~20 mL/hour).

8.1 If unable to establish IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY* immediately. Any further attempt at IV placement must occur en route.

8.2 Prior to administration of any medication to a patient with an intracranial shunt, contact Medical Control.

9. Administer **EPINEPHRINE** as indicated on Pediatric Dosing device, and repeat every 3-5 minutes as necessary:

9.1 IV push dose: **EPINEPHRINE 1:10,000** 0.01 mg/kg (0.1 mL/kg)

9.2 Endotracheal dose **EPINEPHRINE 1:1,000** 0.1 mg/kg (0.1 mL/kg)

10. If bradycardia continues, consider **ATROPINE SULFATE**, as indicated on Pediatric Dosing device, to treat increased vagal tone:

    10.1 IV push dose: **ATROPINE SULFATE** 0.02 mg/kg (0.02 mL/kg); may repeat once in 5 minutes if necessary. Minimum dose: 0.1 mg; maximum dose: 1.0 mg (child) or 2.0 mg (adolescent).

    10.2 Endotracheal dose: **ATROPINE SULFATE** 0.05 mg/kg (0.05 mL/kg) IV; may repeat once in 5 minutes if necessary. Minimum dose: 0.1 mg; maximum dose: 1.0 mg (child) or 2.0mg (adolescent).

11. Consider transcutaneous pacing, if available.

▼ ***ALL EMTs***

12. Contact Medical Control.

13. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

14. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Chest Pain in a Suspected Cardiac Patient

RECOGNITION

Patient may exhibit severe, crushing chest pain; mild to severe substernal chest pain; diaphoresis; nausea; or vomiting. Pain may radiate to jaw, arms, or neck. Patient may have history of prior MI, cocaine/stimulant use, HTN, etc.

TREATMENT

1. Assess patient, obtain initial vital signs, place patient on cardiac monitor and frequently reassess patient's condition.

2. Loosen tight clothing and allow the patient to chose a comfortable position unless hypotensive. Hypotensive patients should be supine.

3. Administer **OXYGEN** with the highest-concentration device tolerated.

4. Adult patients: administer **ASPIRIN** (160-325 mg).

▼ ***BLS PERSONNEL***

5. Contact Medical Control for authorization to perform the following:

   5.1 Adult patients with systolic BP ≥90 mm Hg: administer **NITROGLYCERIN** 0.4 mg (1/150 grain) sublingually, by tablet or oral spray, of the **patient's own medication only**. Monitor blood pressure every 3 minutes.

▼ ***ALS PERSONNEL***

6. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

   6.1 If trained and equipped to perform 12 lead ECG, and ECG indicates high likelihood of MI, contact Medical Control.

7. Start an IV access device or at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** to run at KVO rate.

   7.1 If an IV has been started, administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (~ 20ml/ hour).

   7.2 If unable to establish IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY.* Any further attempt at IV placement must occur en route.

▼ ***ALS PERSONNEL***

8. Adult patients with systolic BP ≥ 90 mm Hg: administer **NITROGLYCERIN** 0.4 mg (1/150 grain) sublingually, by tablet or oral spray. Repeat every 5 minutes, as long as patient has chest pain and systolic blood pressure ≥ 90 mm Hg. Monitor blood pressure every 3 minutes.

   8.1 If unable to establish an IV, EMTs may still administer **NITROGLYCERIN** for patient with systolic BP > 150 mm Hg.

   8.2 If chest pain is unchanged, EMTs may administer **MYLANTA®** 30 mL, if available, by mouth after third dose of **NITROGLYCERIN.**

.

8.3 Pediatric patients < 5 feet tall (<35 kg/75 lbs): administration of **NITROGLYCERIN** requires authorization from Medical Control

9. Treat specific dysrhythmias, following all appropriate protocols.

10. Contact Medical Control for authorization to perform any of the following:

    10.1 Provide pain relief, following the *Pain Management and Sedation* protocol.

    10.2 Administer **LIDOCAINE HCL** 1.0-1.5 mg/kg IV push. Repeat at 10-minute intervals x2, at 0.5-0.75 mg/kg. Maximum total dose: 3 mg/kg.

    10.3 To administer **MYLANTA®** 30 mL, if available, by mouth, prior to administration of first three **NITROGLYCERIN** doses.

▼ ***ALL EMTs***

11. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

12. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Congestive Heart Failure (Pulmonary Edema)

RECOGNITION

Respiratory distress with one or more of the following: heart rate > 120 (adult); respiratory rate > 30 (adult), hypoxia, jugular venous distention, rales, diaphoresis, past history of congestive heart failure but without upper airway obstruction or stridor.

TREATMENT

1. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.
2. Allow the patient to chose a comfortable position unless hypotensive. Hypotensive patients should be supine.
3. Administer **OXYGEN** with the highest-concentration device tolerate. Assist ventilation as indicated.
4. Adult patients: administer **ASPIRIN** (160-325 mg)

▼ ***BLS PERSONNEL***

5. Contact Medical Control for authorization to perform any or all of the following:

   5.1 Adult patients with systolic BP ≥ 90 mmHg: administer **NITROGLYCERIN** 0.4 mg (1/150 grain) sublingually, by tablet, or by oral spray, of the **patient's own medication only.** Monitor blood pressure every 5 minutes.

   5.2 For patients who are **wheezing**, administer **ALBUTEROL** as indicated below:

   5.2.1 Adult Patients: administer 2.5 mg of **ALBUTEROL** 0.083% solution (or 0.5 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5 to15 minutes. May repeat x 2 en route.

5.2.2 Patients ≥ 6 months of age: administer 2.5 mg of **ALBUTEROL** 0.083% solution (or 0.5mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5 to 15 minutes. May repeat x 2 en route.

5.2.3. Patients < 6 months of age: administer 1.25 mg of **ALBUTEROL** 0.083% solution (or 0.25 mL 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5 to 15 minutes. May repeat x2 en route.

▼ ***ALS PERSONNEL***

6. For patients who are wheezing and have a history of COPD/ Asthma, consider administration of **ALBUTEROL** as indicated below:

   6.1 Adult Patients: administer 2.5 mg of **ALBUTEROL** 0.083% solution (or 0.5 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5 to 15 minutes. May repeat x 2 en route.

   6.2 Patients ≥ 6 months of age: administer 2.5 mg of **ALBUTEROL** 0.083% solution (or 0.5 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5 to15 minutes. May repeat x 2 en route.

   6.3 Patients < 6 months of age: administer 1.25 mg of **ALBUTEROL** 0.083% solution (or 0.25 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5 to 15 minutes. May repeat x 2 en route

7. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report***.**

8. Start an IV access device and run at KVO rate (~20 ml/hour).

   8.1 If unable to establish IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

9. Adult patients with systolic BP ≥ 90 mmHg: administer **NITROGLYCERIN** 0.4 mg (1/150 grain) sublingually, by tablet or by oral spray. Repeat every 5 minutes, for as long as patient has respiratory distress and systolic blood pressure ≥ 90 mmHg. Monitor blood pressure every 3 minutes.

   9.1 If unable to establish an IV, EMTs may still administer **NITROGLYCERIN** for patient with systolic BP > 150 mmHg.

   9.2 Pediatric patients <5 feet tall (<35 kg/75 lbs); administration of **NITROGLYCERIN** requires authorization from Medical Control

10. Treat specific dysrhythmias following all appropriate protocols.

11. Administer **FUROSEMIDE** (Lasix®) as indicated below:

    11.1 Adult patients who **do not** take daily oral **FUROSEMIDE** (Lasix®): administer **FUROSEMIDE** (Lasix®) 40 mg IV over 2 minutes.

    11.2 Adult patients who **do** take daily oral **FUROSEMIDE** (Lasix®): administer **FUROSEMIDE** (Lasix®) IV at double the daily oral dose (not to exceed 240 mg); administer up to 100 mg IV push; administer the remainder (up to 140 mg) at a rate < 20 mg/minute.

    11.3 Pediatric patients < 5 feet tall (<35 kg/75 lbs) who **do not** take daily oral **FUROSEMIDE** (Lasix®): administer **FUROSEMIDE** (Lasix®) per Pediatric Dosing device: 1 mg/kg (not to exceed 20 mg), IV over 2 minutes.

    11.4 Pediatric patients < 5 feet tall (<35 kg/75 lbs) who **do** take daily oral **FUROSEMIDE** (Lasix®): administer **FUROSEMIDE** (Lasix®) at double the daily oral dose (not to exceed 40 mg), IV over 2 minutes.

12. Contact Medical Control.

    12.1 For patients exhibiting significant respiratory distress, administer **MORPHINE SULFATE,** following the *Pain Management and Sedation* protocol.

    12.2 For patients exhibiting signs of shock consider administration of **DOPAMINE** and IV bolus of **NORMAL SALINE** or **RINGER'S LACTATE** solution as per Medical Control.

▼ ***ALL EMTs***

13. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*

14. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Pulseless Electrical Activity (PEA) [ALS] Flowchart

CPR / Airway Management

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Monitor ECG; identify PEA
Confirm pulselessness and PEA on ECG

↓

Ventilate with high-concentration O_2

↓

IV: NS or LR

↓

Consider Advanced Airway Management

↓

EPINEPHRINE every 3-5 min

↓

If ventricular rate is slow: **ATROPINE** every 3-5 min

↓

If VFib occurs, follow VFib protocol

↓

EMT-Ps only: pleural decompression

↓

Transport to nearest hospital ED

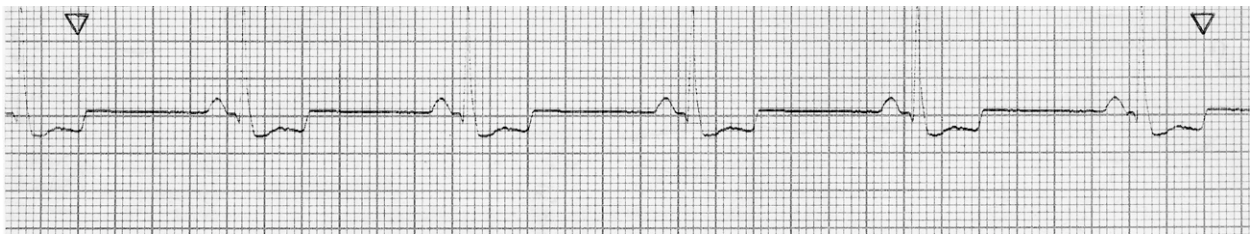
↓

Contact Medical Control

↓

Document

Pulseless Electrical Activity (PEA) [ALS]



RECOGNITION

Unresponsive, apneic, pulseless patient with electrical activity other than **ventricular fibrillation** (VF) or **ventricular tachycardia** (VT).

Note: Causes of PEA include: acidosis; cardiac tamponade; hypothermia; hypovolemia; hypoxia; myocardial infarction; overdose; pulmonary embolus; shock; and tension pneumothorax.

TREATMENT

1. Begin Basic Life Support (CPR) using the current sequence of the American Heart Association.

> **1.1 Do not interupt CPR for more than 5 seconds, except for a maximum of 30 seconds to intubate or move the patient until the patient has been stabilized, or until authorized by Medical Control to do so.**

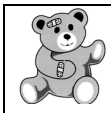
2. Check the pulse. Follow the *PEA* protocol only if the pulse is absent.

3. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

4. Start at least one IV access of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate (~20 ml/hour) for cardiac arrest not caused by hypovolemia.

   4.1 If hypovolemia is suspected, administer 500ml **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at wide-open rate.

   4.2 If unable to establish IV in 2 attempts or 5 minutes, continue CPR and transport the patient to the nearest appropriate *HOSPITAL EMERGENCY FACILITY* immediately. Any further attempt at IV placement must occur en route.



4.3 Pediatric patients < 5 feet tall (<35 kg/ 75 lbs.) administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (~20 ml/ hr.); or administer boluses of 20 ml/kg by rapid IV push if hypovolemia is suspected. Assess and re-bolus if indicated.

5. Consider advanced airway management as indicated in the *Airway Management and Respiratory Support* protocol.

6. Administer **EPINEPHRINE** as indicated below:

   6.1 Adult patients: administer **EPINEPHRINE 1:10,000** 1.0 mg IV push. Repeat every 3-5 minutes if PEA persists.

      6.1.1 If unable to establish an IV, administer **EPINEPHRINE 1:1,000** 2.0-2.5 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube. Repeat every 3-5 minutes if PEA persists.

6.2 Pediatric patients <5 feet tall (<35 kg/75lbs): administer **EPINEPHRINE** as indicated on Pediatric Dosing device, and repeat every 3-5 minutes as necessary:

   6.2.1 IV Push Dose: **EPINEPHRINE 1:10,000** 0.01 mg/kg (0.1 mL/kg)

   6.2.2 Endotracheal doses: **EPINEPHRINE 1:1,000** 0.1 mg/kg (0.1 mL/kg), diluted to 3-5 mL with **NORMAL SALINE.**

7. If PEA involves a bradycardic rhythm, administer **ATROPINE SULFATE** as indicated below:

   7.1 Adult patients: administer **ATROPINE SULFATE** 1.0 mg IV push. Repeat every 3-5 minutes if PEA with slow ventricular rate persists, to a maximum of 3.0 mg

      7.1.1 If unable to establish an IV, administer **ATROPINE SULFATE** 1-2 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube. Repeat every 3-5 minutes if PEA with slow ventricular rate persists, to a maximum of 3.0 mg.

8. If ventricular fibrillation occurs, follow *Ventricular Fibrillation* protocol.

9. ***EMT-Ps only:*** If PEA persists, may perform pleural decompression.

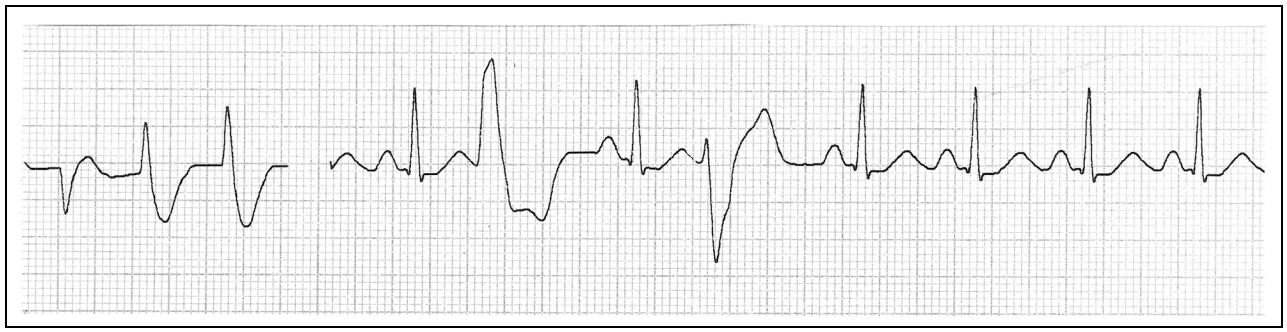
10. Transport the patient without delay to the nearest appropriate *HOSPITAL EMERGENCY FACILITY.*

11. Contact Medical Control.

    11.1 For certain conditions, Medical Control may authorize administration of **SODIUM BICARBONATE** 1 mEq/kg IV push, followed by 0.5 mEq/kg IV push every 10 minutes.

12. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Premature Ventricular Complexes (PVCs) [ALS]



RECOGNITION

Frequent PVCs (>6 per minute) with chest pain; dyspnea; decreased level of consciousness; hypotension; shock; or CHF in a suspected cardiac patient.

TREATMENT

1. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

2. Allow the patient to chose a comfortable position unless hypotensive. Hypotensive patients should be supine.

3. Administer **OXYGEN** with the highest-concentration device tolerated.

4. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.

5. Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution and run at KVO rate (~20 ml/hour):

    5.1 If unable to establish IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

6. Administer **LIDOCAINE HCL** as indicated below:

    6.1 Administer **LIDOCAINE HCL** 1.0-1.5 mg/kg IV push.

7. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*

8. Repeat **LIDOCAINE HCL** at 10-minute intervals at 0.5-0.75 mg/kg. Maximum total dose: 3 mg/kg.

8.1 ***EMT-Ps only:*** may administer **LIDOCAINE HCL** infusion at 30-50 mcg/kg/minute. (2-4 mg/min).

8.1.1 ***EMT-Ps*** with IV pump training **ONLY**: May administer **LIDOCAINE HCL** by Infusion Pump. Lower dosages should be used in patients with hepatic dysfunction or >70 years of age. Infusion should be discontinued if any signs of toxicity or decompensation appear.

9. Contact Medical Control.

9.1 With authorization from Medical Control, ***EMT-Cs*** may administer **LIDOCAINE HCL** infusion at 30-50 mcg/kg/minute. (2-4 mg/min).

9.1.1 ***EMT-Cs*** with Medical Control and IV Pump training **ONLY:** May administer **LIDOCAINE HCL** by Infusion Pump. Lower dosages should be used in patients with hepatic dysfunction or >70 years of age. Infusion should be discontinued if any signs of toxicity or decompensation appear

10. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Supraventricular Tachycardia (SVT) [ALS] Flowchart

Adult Patient, Conscious with Stable Vital Signs

Assess patient and obtain initial VS
Reassess frequently

↓

High-concentration O_2

↓

Monitor and document ECG

↓

IV: NS or LR

↓

ADENOSINE

↓

Contact Medical Control

↓

EMT-Ps only: Per Med Control, **VERAPAMIL HCL** or **DILTIAZEM**

↓

If SVT continues **EMT-Ps only** per Medical Control
AMIODARONE

↓

Transport to hospital ED

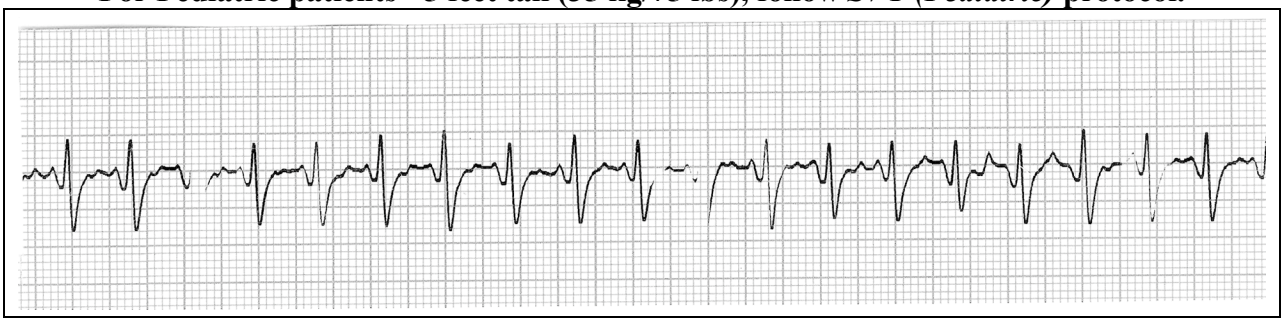
↓

Document

Supraventricular Tachycardia (SVT) [ALS]

Patient Conscious, with Stable Vital Signs

For Pediatric patients <5 feet tall (35 kg/75 lbs), follow *SVT (Pediatric)* protocol.



RECOGNITION

Conscious patient with heart rate of 140-220 beats per minute; QRS width <0.12 seconds.
Note: If the QRS width >0.12 seconds, consider **ventricular tachycardia.**

TREATMENT

1. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

2. Loosen tight clothing and allow the patient to chose a comfortable position unless hypotensive. Hypotensive patients should be supine.

3. Administer **OXYGEN** with the highest-concentration device tolerated.

4. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

5. Encourage the patient to perform vagal maneuvers (e.g., bearing down, etc.).

6. Start at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate (~20 mL/hour).

   6.1 If unable to establish an IV in 2 attempts or 5 minutes transport the patient to a *HOSPITAL EMERGENCY FACILITY.* Any further attempt at IV placement must occur en route.

7. Administer **ADENOSINE** (Adenocard®) as indicated below:

Adenosine should not be given to patients taking Persantine or Aggrenox, or patients who have had heart transplants as the effects may be prolonged and unpredictable

7.1 Administer **ADENOSINE** 6 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20 mL **NORMAL SALINE** or **LACTATED RIGNER'S** solution.

7.2 If 6 mg dose does not convert rhythm within 1-2 minutes, administer **ADENOSINE** 12 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20 mL **NORMAL SALINE** or **LACTATED RINGER'S** solution. If 12 mg dose does not convert rhythm, repeat once in 1-2 minutes.

8. Contact Medical Control. **With authorization from Medical Control, *EMT-Ps* may perform the following:**

8.1 Administer **VERAPAMIL HCI** (Calan®, Isoptin®) **or DILTIAZEM** (Cardizem®) as indicated below:

8.1.1 Administer **VERAPAMIL HCL** 2.5-5.0 mg IV over 1-2 minutes if the adenosine did not work and the patient does not have CHF or significant ventricular dysfunction. If this dose does not convert rhythm within 15 minutes, repeat **VERAPAMIL HCL** 2.5-5.0 mg IV over 1-2 minutes **or,**

8.1.2 Administer **DILTIAZEM** 10-20 mg IV over 2 minutes. If this does not slow or convert rhythm within 15 minutes, repeat **DILTIAZEM** 10-20 mg IV over 2 minutes.

8.1.3 If, following dose of **VERAPAMIL** or **DILTIAZEM** the patient's systolic blood pressure drops below 100mgHG, administer **CALCIUM CHLORIDE** 500 mg IV slowly.

8.1.4 If SVT continues following dose of **VERAPAMIL HCL** or **DILTIAZEM,** Medical Control may authorize administration of **AMIODARONE** 150 mg IV over 10 minutes. Due to the high risk of side effects **AMIODARONE** may only be administered by IV Infusion Pump. **AMIODARONE** must be mixed with **D_5W** using a "PVC-free" bag and tubing and run as an isolated IV, not piggybacked into **NORMAL SALINE** or **LACTATED RINGER'S** solution (Use caution if patient has history of CHF or ventricular dysfunction).

8.1.4.1 ***EMT-Ps*** with IV pump training **ONLY**: May administer **AMIODARONE** by Infusion Pump at a rate as directed by Medical Control (typically 1- 15 mg/min. Faster rates are associated with a higher risk of hypotension).

9. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

10. Document all incident information by completing the *RI EMS Ambulance Run Report*.

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Supraventricular Tachycardia (SVT) [ALS] Flowchart

Adult Patient, Unconscious or with Unstable Vital Signs

Assess patient and obtain initial VS; reassess frequently

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High-concentration O_2

↓

Monitor and document ECG

↓

(Consider sedation; contact Med Control) Synchronized cardioversion

↓

IV: NS or LR

↓

ADENOSINE

↓

Contact Medical Control

↓

EMT-Ps **only,** per Med Control: **VERAPAMIL HCL** or **DILTIAZEM**

↓

If SVT continues, ***EMT-Ps only*****:** Per Medical Control**,** **AMIODARONE**

↓

Transport to nearest appropriate hospital ED

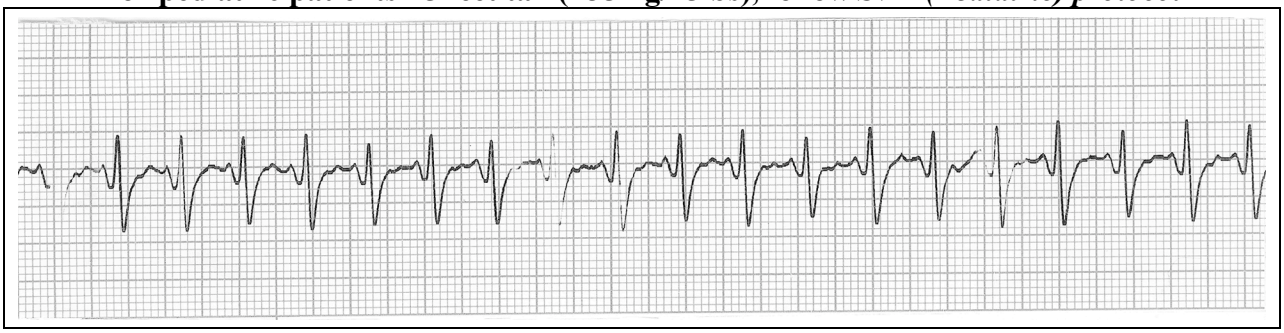
↓

Document

Supraventricular Tachycardia (SVT) [ALS]

Patient Unconscious, or with Unstable Vital Signs

For pediatric patients <5 feet tall (<35 kg/75lbs), follow *SVT (Pediatric) protocol*



RECOGNITION

Patient with heart rate of 140-220 beats per minute; QRS width <0.12 seconds:
NOTE: If the QRS width >0.12 seconds, consider **ventricular tachycardia.**

TREATMENT

1. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

2. Administer **OXYGEN** with the highest-concentration device tolerated.

3. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

4. Attempt to cardiovert the patient, as indicated below:

   4.1 For conscious patients, consider contacting Medical Control for authorization to administer sedative and/or analgesic, following the *Pain Management and Sedation* Protocol.

   4.2 Record initial ECG rhythm and attempted cardioversions; attach copies of the rhythm strips to the hospital copy of the *RI EMS Ambulance Run Report*, as part of required documentation.

   4.3 Attempt synchronized cardioversion at 50 joules or manufacturer's biphasic setting. If unsuccessful, may repeat at increasing energy levels: 100 joules; 200 joules; 300 joules; 360 joules (or maximum energy) or manufacturer's biphasic setting.

5. Start at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate (~20 mL/hour).

   5.1 If unable to establish an IV in 2 attempts or 5 minutes transport the patient to nearest appropriate *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

6. Administer **ADENOSINE** (Adenocard®) as indicated below:

Adenosine should not be given to patients taking Persantine or Aggrenox, or patients who have had heart transplants as the effects may be prolonged and unpredictable

6.1 Administer **ADENOSINE** 12 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20mL **NORMAL SALINE** or **LACTATED RINGER'S** solution.

6.2 If 12 mg dose does not convert rhythm within 1-2 minutes, repeat **ADENOSINE** 12 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20 mL **NORMAL SALINE** or **LACTATED RINGER'S** solution.

7. Contact Medical Control

7.1 **With authorization from Medical Control, *EMT-Ps only* may perform the following:**

7.1.1 Administer **VERAPAMIL HCL** 2.5-5.0 mg IV over 1-2 minutes. If this dose does not convert rhythm within 15 minutes, repeat **VERAPAMIL HCL** 2.5-5.0 mg IV over 1-2 minutes **or**

7.1.2 Administer **DILTIAZEM** 10-20mg IV over 2 minutes. If this does not slow or convert rhythm within 15 minutes, repeat **DILTIAZEM** 10-20mg IV over 2 minutes.

7.1.3 If, following dose of **VERAPAMIL HCL** or **DILTIAZEM** the patient's systolic blood pressure drops below 100mgHG, administer **CALCIUM CHLORIDE** 500mg IV slowly.

7.1.4 If SVT continues following dose of **VERAPAMIL HCL** or **DILTIAZEM,** Medical Control may authorize administration of **AMIODARONE** 150 mg IV over 10 minutes. (Use caution if patient has history of CHF or ventricular dysfunction). Due to the high risk of side effects with incorrect dosage, **AMIODARONE** infusions may only be administered by IV Infusion Pump. **AMIODARONE** must be mixed with **D_5W** using a "PVC-free" bag and tubing and run as an isolated IV (not piggybacked into **NORMAL SALINE** or **LACTATED RINGER's** solution).

8. Transport the patient without delay to the nearest appropriate *HOSPITAL EMERGENCY FACILITY*.

9. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Supraventricular Tachycardia (SVT) (Pediatric)-Stable [ALS] Flowchart

Stable Pediatric Patient without Impaired Consciousness, Respiratory Distress or Shock

Assess patient; obtain initial VS

↓

High-concentration O_2

↓

Monitor and document ECG

↓

Vagal maneuvers

↓

IV: NS or LR

↓

Contact Medical Control

↓

Per Med Control, **ADENOSINE**

↓

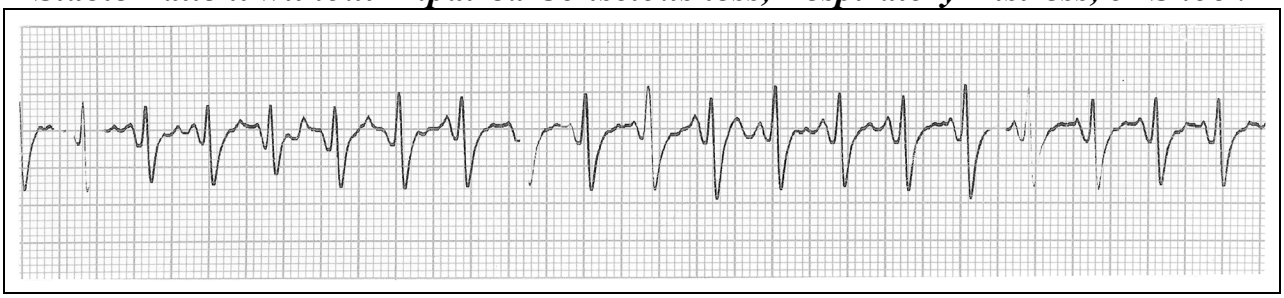
Transport to hospital ED

↓

Document

Supraventricular Tachycardia (SVT) (Pediatric)-Stable [ALS]

Stable Patient without Impaired Consciousness, Respiratory Distress, or Shock



RECOGNITION:

1. Clinical Indicators:

   1.1 Infant: Poor feeding, diaphoresis, irritability;

   1.2 Child: Rapid heart rate, fatigue, exercise intolerance;

2. ECG Recognition:

   2.1 If narrow complex tachycardia with regular and consistent rate >230/minute, suspect **SVT**.

   2.2 If narrow complex tachycardia with varied rate <200 minute, suspect **sinus tachycardia,** and evaluate carefully for evidence of hypovolemic shock.

TREATMENT:

1. Assess the patient, including:

   a. Level of consciousness/responsiveness, airway maintenance;

   b. Respiratory rate and effort, skin/mucous membrane color;

   c. Heart rate, distal pulses, temperature, capillary refill, BP;

2. Administer **OXYGEN** with the highest-concentration device tolerated.

3. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

4. As appropriate given patient age, encourage the patient to perform vagal maneuvers (e.g., bearing down or blowing through a small straw).

    4.1 In infants and children <8 years old: apply ice or ice water to the patient's face without occluding the airway for 30 seconds to 1 minute.

5. If SVT persists:

    5.1 Start at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate (~20mL/hour).

        5.1.1 If unable to establish an IV in 2 attempts or 5 minutes transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

6. Contact Medical Control, for authorization to administer **ADENOSINE:**

Adenosine should not be given to patients taking Persantine or Aggrenox, or patients who have had heart transplants, as the effects may be prolonged and unpredictable.

    6.1 Administer **ADENOSINE** (Adenocard®) 0.2 mg/kg (maximum first dose: 12 mg), rapid IV push (over 1-3 seconds), followed by a rapid flush with 2-3 mL of **NORMAL SALINE** or **LACTATED RINGER'S** solution.

    6.2 If the initial dose does not convert rhythm in 1-2 minutes, administer **ADENOSINE** (Adenocard®) 0.2 mg/kg (maximum dose 12 mg.), rapid IV push (over 1-3 seconds), followed by a rapid flush with 2-3 mL of **NORMAL SALINE** or **LACTATED RINGER'S** solution

7. If there is evidence of shock, follow the *SVT- Unstable (Pediatric)* and or *Shock* Protocol.

8. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*

9. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Supraventricular Tachycardia (SVT) (Pediatric)-UnStable [ALS] Flowchart

Unstable Pediatric Patient: Impaired Consciousness, Respiratory Distress, or Shock

Assess patient; Obtain initial VS; Treat shock following *Shock* protocol

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High-concentration O_2, Assist with BVM
Consider advanced airway management

↓

Monitor and document ECG

↓

(Consider sedation: Contact Med Control) Synchronized cardioversion

↓

IV: NS or LR

↓

Treat shock, following *Shock* protocol

↓

Contact Medical Control

↓

Per Med Control: **ADENOSINE**

↓

Per Med Control: ***EMT-Ps*: AMIODARONE HCL**

↓

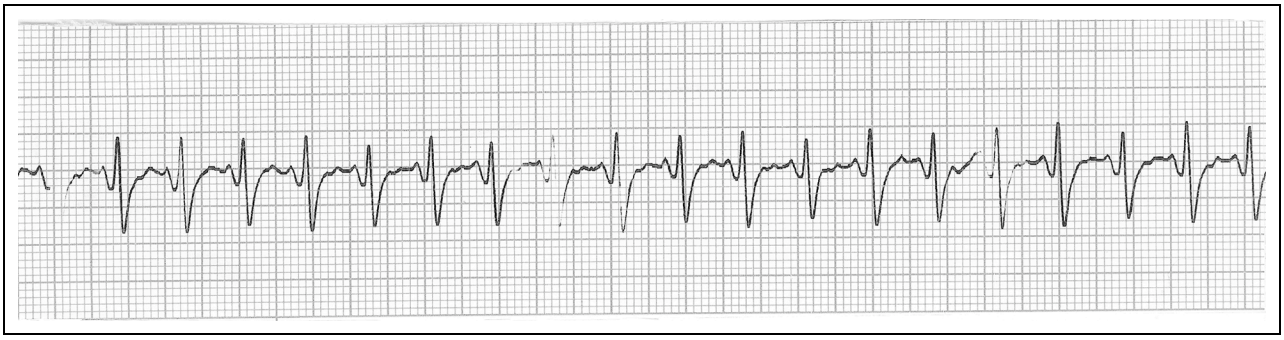
Transport to hospital ED

↓

Document

Supraventricular Tachycardia (SVT) (Pediatric)-Unstable [ALS]

Unstable Patient, with Impaired Consciousness, Respiratory Distress, or Shock



RECOGNITION:

1. Clinical Indicators:

   1.1 Infant: Poor feeding, diaphoresis, irritability, respiratory distress, impaired consciousness, CHF, or evidence of shock;

   1.2 Child: Rapid heart rate, fatigue, exercise intolerance, impaired consciousness, syncope, respiratory distress, CHF, or evidence of shock.

2. ECG Recognition:

   2.1 If narrow complex tachycardia with regular and consistent rate >230/minute, suspect **SVT**.

   2.2 If narrow complex tachycardia with varied rate <200/minute, suspect **sinus tachycardia,** and evaluate carefully for evidence of hypovolemic shock.

TREATMENT

1. Perform a rapid assessment to include the following:

   a. level of consciousness/responsiveness, airway maintenance;

   b. respiratory rate and effort, skin/mucous membrane color;

   c. heart rate, distal pulses, temperature, capillary refill, BP.

2. Administer **OXYGEN** with the highest-concentration device tolerated.

2.1 Children with impaired consciousness, cyanosis, respiratory distress, or evidence of shock require assisted ventilations with high-concentration **OXYGEN** and airway adjuncts.

2.1.1 ***EMT-Ps only:*** consider advanced airway mangement, as indicated in the *Airway Management and Respiratory Support* protocol.

3. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

4. Attempt synchronized cardioversion at **0.5 to 1** joule/kg or at manufacturer's biphasic setting. If unsuccessful, may repeat at **2** joule/kg or at manufacturer's biphasic setting.

4.1 For patients who are conscious, consider contacting Medical Control for authorization to administer sedative and/or analgesic, following the *Pain Management and Sedation* protocol.

4.2 Record ECG during attempted cardioversions, and attach copies of the rhythm strips to the hospital copy of the *RI EMS Ambulance Run Report,* as part of required documentation.

5. Start at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate (~20 mL/hour).

5.1 If unable to establish an IV in 2 attempts or 5 minutes, transport the patient to the nearest appropriate *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

6. If there is evidence of shock, follow the *Shock* protocol.

7. Contact Medical Control, for authorization to administer **ADENOSINE:**

Adenosine should not be given to patients taking Persantine or Aggrenox, or patients who have had heart transplants, as the effects may be prolonged and unpredictable.

7.1 Administer **ADENOSINE** (Adenocard®) 0.2 mg/kg (maximum first dose: 12 mg), rapid IV push (over 1-3 seconds), followed by a rapid flush with 2-3 mL of **NORMAL SALINE** or **LACTATED RINGER'S** solution.

7.2 If initial dose does not convert rhythm within 1-2 minutes, administer **ADENOSINE** 0.2 mg/kg (maximum dose: 12 mg), rapid IV push (over 1-3 seconds), followed by a rapid flush with 2-3 mL of **NORMAL SALINE** or **LACTATED RINGER'S** solution.

8. ***EMT-Ps ONLY*:** with authorization from Medical Control, may administer **AMIODARONE** as indicated below:

   8.1 ***EMT-Ps*** with IV pump training **ONLY**: May administer **AMIODARONE** at 5 mg/kg IV by Infusion Pump, **slowly** (over 20-60 minutes). Give more slowly if a perfusing rhythm is present. Faster rates are associated with a higher risk of hypotension. Due to the high risk of side effects with incorrect dosage, **AMIODARONE** infusions may only be administered by IV Infusion Pump. **AMIODARONE** must be mixed with **D_5W** using a "PVC-free" bag and tubing and run as an isolated IV (not piggybacked into **NORMAL SALINE** or **LACTATED RINGER's** solution).

9. Transport the patient without delay to the nearest appropriate *HOSPITAL EMERGENCY FACILITY.*

10. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Ventricular Fibrillation (VF) and Pulseless Ventricular Tachycardia (VT) [ALS] Flowchart

Confirm pulselessness and VFib/VTach on ECG

↓

Witnessed Cardiac Arrest: Defibrillate using current sequence of the American Heart Association
Unwitnessed Cardiac Arrest: CPR using the current sequence of the American Heart Association

↓

Cycles of Defibrillation/CPR

↓

Attach cardiac monitor if not previously done and document ECG

↓

IV: NS or LR

↓

If unable to establish IV, TRANSPORT
If able to perform uninterrupted CPR and IV established, TRANSPORT

↓

Consider advanced airway management

↓

EPINEPHRINE/ Defibrillate

↓

Cycles of **EPINEPHRINE**/ Defibrillation/ CPR

↓

AMIODARONE or LIDOCAINE HCL

↓

Medical Control

↓

Consider maintenance doses of **AMIODARONE** or **LIDOCAINE HCL**
Consider **SODIUM BICARBONATE**
EMT-Ps only: Consider **MAGNESIUM SULFATE**

↓

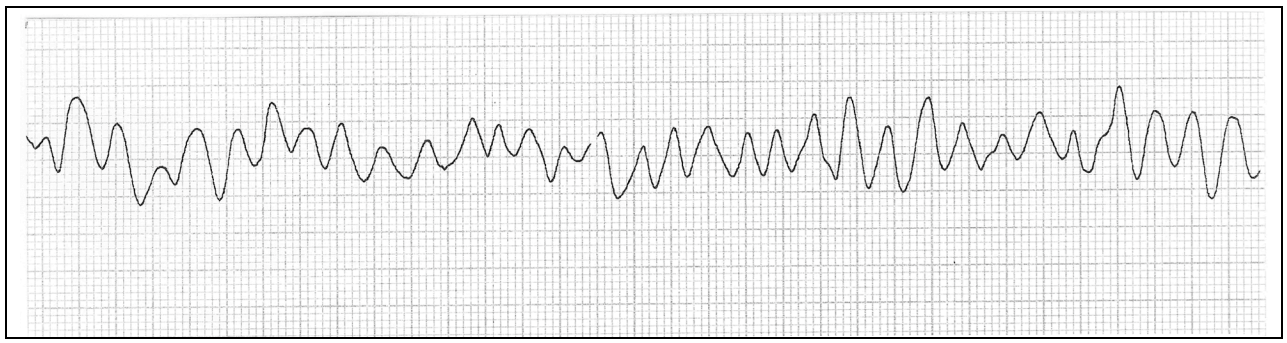
TRANSPORT

↓

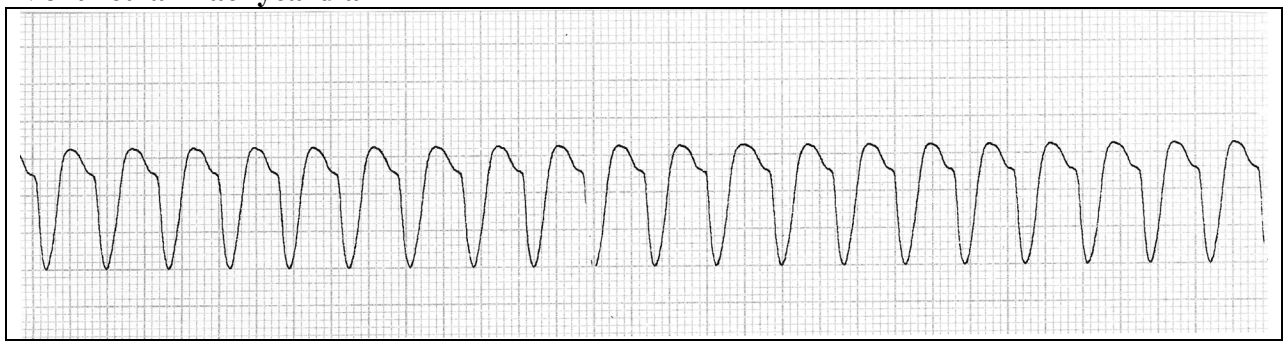
Document

Ventricular Fibrillation (VF) and Pulseless Ventricular Tachycardia (VT) [ALS]

Ventricular Fibrillation



Ventricular Tachycardia



RECOGNITION

Unconscious, pulseless patient with **ventricular fibrillation** (VF) or **ventricular tachycardia** (VT) on ECG and where the cardiac arrest may be witnessed or unwitnessed.

> **EMS witnessed arrest**: In keeping with the time-to-defibrillation focus of the 2005 AHA Guidelines, a "Witnessed Cardiac Arrest" is one where the patient's collapse and pulslessness occur in the presence of the EMT ***and*** a defibrillator shock can be delivered within 30 seconds
>
> **Unwitnessed arrest**: Other cardiac arrest situations where a defibrillator shock cannot be delivered within 30 seconds.

TREATMENT

1. Check the pulse. Follow the *VF/Pulseless VT* protocol only if the pulse is absent. If at any time the patient shows signs of recovery and there is a return of pulse, follow all appropriate protocols.

2. If Unwitnessed Cardiac Arrest, begin CPR using the current sequence recommended by the American Heart Association and deliver about 5 cycles per 2 minutes of CPR while obtaining and preparing defibrillator.

   2.1 Continue cycles of CPR/ defibrillation according to AHA Guidelines.

   2.2 If Witnessed Cardiac Arrest, proceed to immediate defibrillation.

3. Confirm VF/VT on monitor/defibrillator.

   3.1 Immediately apply "quick-look" paddles or "hands-free" electrodes. Use adult standard paddles/pads for all patients ≥ 1 year old (10 kg.) and ensure adequate spacing (>3cm.) between paddles/pads. Use infant paddles/pads on patients < 1 year old. Anterior/posterior placement where possible is preferred.

   3.2 Identify VF or VT. Changing the location of the electrodes may reveal VF that at first appears to be asystole.

   3.3 Record initial ECG rhythm and attempted defibrillations; attach copies of the rhythm strips to the hospital copy of the *RI EMS Ambulance Run Report*, as part of required documentation.

4. Attempt to defibrillate.

   4.1 Adult patients:

      4.1.1 Check pulse and identify rhythm. If VF/VT persists, defibrillate at **360 joules** monophasic or manufacturer's biphasic setting.

   4.2 Pediatric patients: defibrillate as indicated below. Use Pediatric Dosing Device to determine patient weight in kg.

      4.2.1 Check pulse and identify rhythm. If VF/VT persists, defibrillate at **2 joules/kg (~ 1 joule/ lb)** monophasic or manufacturer's biphasic setting.

      4.2.2 Immediately resume CPR and perform any additional defibrillations per current AHA guidelines.

      4.2.3 All subsequent defibrillations to be at **4 joules/kg (~ 2 joules/lb)** monophasic or manufacturer's biphasic setting.

5. Check rhythm after performance of cycles of defibrillation and CPR according to the AHA Guidelines.

   5.1 If VF/VT is converted to another perfusing rhythm check pulse and reassess the patient and follow all appropriate protocols.

   5.2 If VF/VT persists, continue treatment as indicated below.

6. Begin or continue CPR sequence following current American Heart Association guidelines.

6.1 DO NOT INTERRUPT CPR FOR MORE THAN 5 SECONDS EXCEPT FOR A MAXIMUM OF 30 SECONDS TO DEFIBRILLATE, MOVE THE PATIENT OR PERFORM ADVANCED AIRWAY TECHNIQUES WHEN INDICATED. IF SAFE PATIENT TRANSPORT WILL CAUSE DELAYS, PERFORM ALS INTERVENTIONS PRIOR TO PATIENT MOVMENT IF POSSIBLE.

7. Place the patient on a cardiac monitor, if not previously done. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

8. Establish at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate, as indicated below:

   8.1 Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (~20 mL/hour).

   8.2 If unable to establish an IV in 2 attempts or 5 minutes, transport the patient to the nearest appropriate *HOSPITAL EMERGENCY FACILITY.* Any further attempt at IV placement must occur en route.

   8.3 If unable to establish an IV and patient movement/transport will require CPR interruption, perform ALS interventions prior to patient movement. If patient movement/ transport will not interrupt CPR, perform ALS interventions during patient transport.

9. Consider an advanced airway as indicated in the *Airway Management and Respiratory Support Protocol.*

   9.1 Whenever possible, ventilate the patient using high-concentration oxygen.

10. Administer **EPINEPHRINE** as indicated below (Use Pediatric Dosing device to determine pediatric patient weight in kg):

    10.1 Adult patients: administer **EPINEPHRINE 1:10,000** 1.0 mg IV push. Repeat every 3-5 minutes if VF/pulseless VT persists.

        10.1.1 If unable to establish an IV administer **EPINEPHRINE 1:1,000** 2.0-2.5 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube. Repeat every 3-5 minutes if VF/pulseless VT persists.

    10.2 Pediatric patients: administer **EPINEPHRINE** as indicated below and repeat every 3-5 minutes as necessary (Use Pediatric Dosing device to determine patient weight in kg):

        10.2.1 Administer **EPINEPHRINE 1:10,000** 0.01 mg/kg (0.1 mL/kg) IV push.

        10.2.2 Endotracheal doses: **EPINEPHRINE 1:1,000** 0.1 mg/kg (0.1 mL/kg), diluted to 3-5 mL with **NORMAL SALINE**

    10.3 Continue CPR for 30-60 seconds after administration of **EPINEPHRINE.**

11. Attempt to defibrillate as indicated below:

    11.1.1 Adult patients: defibrillate at **360 joules** (maximum energy) monophasic or at manufacturer's biphasic setting.

    11.1.2 Pediatric patients defibrillate as indicated on pediatric dosing device: **4 joules/kg (~2 joules/lb)** monophasic or at manufacturer's biphasic setting.

12. If VF/VT persists, continue sequence of **EPINEPHRINE** administration –then Defibrillation every 3-5 minutes. While continuing this sequence, administer **AMIODARONE** or **LIDOCAINE HCL** as indicated below:

    12.1 Adult patients: ***EMT-Ps only*** (or ***EMT-Cs*** with Medical Control) administer **AMIODARONE** 300 mg IV bolus once.

    12.2 Pediatric Patients: ***EMT-Ps only*** (or ***EMT-Cs*** with Medical Control) administer **AMIODARONE** 5 mg/kg IV bolus once (maximum dose: 300mg).

OR

12.3 All patients: Administer **LIDOCAINE HCL** 1.0- 1.5 mg/kg IV push (or 2.0- 3.0 mg/kg by endotrachael tube), followed by **NORMAL SALINE** flush.

12.4 If VF/VT persists, repeat administration of **LIDOCAINE HCL** every 3-5 minutes to a maximum total of 3mg/kg of **LIDOCAINE HCL**.

13. For all patients: If VF/VT is converted to a perfusing rhythm contact Medical Control for permission to administer **AMIODARONE** or **LIDOCAINE HCL.** A loading dose may be considered if not already given with careful attention to the risk of side effects. Typically if a drug has already been administered, that same drug should be continued if maintenance infusion is administered. Due to the high risk of side effects with incorrect dosage, **AMIODARONE** or **LIDOCAINE HCL** infusions may only be administered by IV Infusion Pump. **AMIODARONE** must be mixed with **D_5W** using a "PVC-free" bag and tubing and run as an isolated IV (not piggybacked into **NORMAL SALINE** or **LACTATED RINGER's** solution).

13.1 ***EMT-Cs*** and ***EMT-Ps*** with IV pump training **ONLY**: May administer **AMIODARONE** by Infusion Pump at a rate as directed by Medical Control (typically 1- 15 mg/min – faster rates are associated with a higher risk of hypotension).

OR

13.2 ***EMT-Cs*** and ***EMT-Ps*** with IV pump training **ONLY**: May administer **LIDOCAINE HCL** by IV Infusion Pump at a rate as directed by Medical Control (typically 1-4 mg/min/ 30-50 mcg/kg/min). Lower doses should be used in patients with hepatic dysfunction or > 70 years of age. Infusion should be discontinued if any signs of toxicity or decompensation appear.

14. For certain conditions, Medical Control may authorize administration of **SODIUM BICARBONATE** 1 mEq/kg IV push, followed by 0.5 mEq/kg IV push every 10 minutes.

15. ***EMT-Ps only*****:** For Torsades de Pointes, Medical Control may authorize administration of **MAGNESIUM SULFATE** 1 gram IV. Dose may be repeated once (max. dosage: 2 grams)

16. Transport the patient without delay to the nearest *HOSPITAL EMERGENCY FACILITY*.

17. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Ventricular Tachycardia (VT) [ALS] Flowchart

Patient Conscious, with Stable Vital Signs

Assess patient and obtain initial VS
Reassess frequently

↓

High-concentration O_2

↓

Monitor and document ECG

↓

IV: NS or LR

↓

AMIODARONE
(By IV Infusion Pump Only)

↓

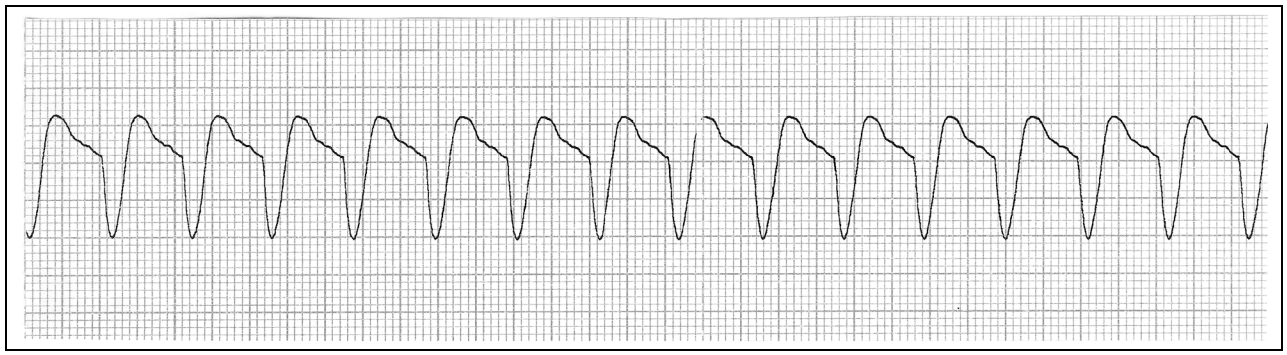
Transport to hospital ED

↓

Document

Ventricular Tachycardia (VT) [ALS]

Patient conscious, with stable vital signs



RECOGNITION

Wide-complex tachycardia (ventricular rate usually <150 per minute) on ECG of patient who is conscious, **without** a history of SVT or any of the following signs and symptoms: chest pain, dyspnea, decreased level of consciousness, hypotension or shock.

TREATMENT

1. Assess patient, obtain initial vital signs, and frequently reassess patient's condition. If patient develops chest pain, dyspnea, decreased level of consciousness, hypotension or shock, follow all appropriate Protcols.

2. Allow the patient to chose a comfortable position unless hypotensive. Hypotensive patients should be supine.

3. Administer **OXYGEN** with the highest-concentration device tolerated.

4. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

5. Start at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution:

   5.1 Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (~20mL/hour).

   5.2 If unable to establish an IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

6. Contact Medical Control:

   6.1 With authorization from Medical Control, ***EMT-Cs and EMT-Ps*** with IV Pump training **ONLY** may administer **AMIODARONE** by infusion pump. **AMIODARONE** must be mixed with **D_5W** using a "PVC-free" bag and tubing and run as an isolated IV (not piggybacked into **NORMAL SALINE** or **LACTATED RINGER'S** solution). Due to the high risk of side effects with incorrect dosage, **AMIODARONE** infusions may only be administered by Infusion Pump as indicated below:

      6.1.1 Adult patients: ***EMT-Cs*** and ***EMT-Ps*** with IV pump training **ONLY** may administer **AMIODARONE:** 150 mg over 10 minutes (15 mg/minute) by IV Infusion Pump.

      6.1.2 Pediatric Patients: ***EMT-Cs*** and ***EMT-Ps*** with IV pump training **ONLY** may administer **AMIODARONE**: 5 mg/kg over 20-60 minutes by IV Infusion Pump (maximum dose 150 mg).

7. If VT is converted to another rhythm, follow all appropriate protocols.

8. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*

9. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Ventricular Tachycardia (VT) [ALS] Flowchart

Patient Unconscious, or with Unstable Vital Signs

Assess patient and obtain initial VS
Reassess frequently

↓

High-concentration O_2

↓

Monitor and document ECG

↓

(Consider sedation)
Synchronized cardioversion

↓

IV: NS or LR

↓

Transport to hospital ED

↓

AMIODARONE or LIDOCAINE HCL

↓

ADENOSINE

↓

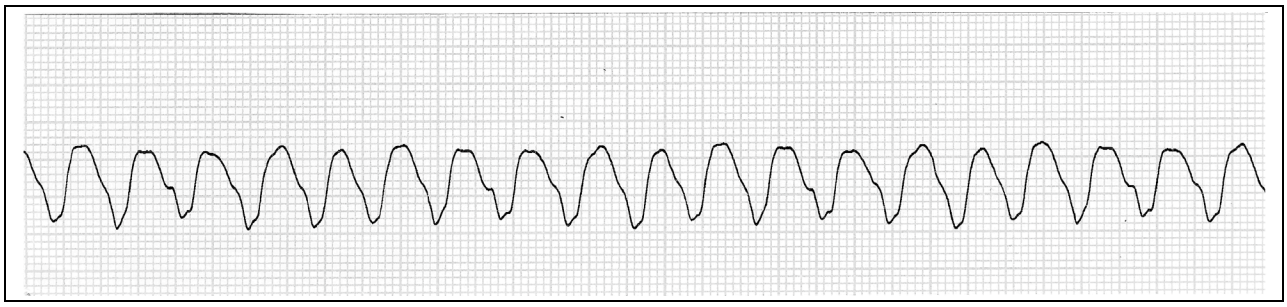
If VTach persists:
Contact Medical Control

↓

Document

Ventricular Tachycardia (VT) [ALS]

Patient unconscious, with a pulse, or with unstable vital signs



RECOGNITION

Wide-complex tachycardia (ventricular rate usually >150 per minute) on ECG of patient who is unconscious, or who has any of the following signs and symptoms: chest pain, dyspnea, decreased level of consciousness, hypotension, or shock.

TREATMENT

1 Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

2 Administer **OXYGEN** with the highest-concentration device tolerated. Assist ventilations as indicated.

3 Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

4 Attempt to cardiovert the patient, as indicated below:

4.1 For conscious patients, consider contacting Medical Control for authorization to administer sedative and/or analgesic, following the *Pain Management and Sedation* protocol.

4.2 Record initial ECG rhythm and attempted cardioversions. Attach copies of the rhythm strips to the hospital copy of the *RI EMS Ambulance Run Report,* as part of required documentation.

4.3 Attempt synchronized cardioversion; as indicated below:

4.3.1 Adult patient: cardiovert at **50 joules.** If unsuccessful, may repeat at increasing energy levels: **100 joules; 200 joules; 300 joules; 360 joules** (or maximum energy) or manufacturer's biphasic equivalent.

4.3.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): attempt synchronized cardioversion at **0.5 joule/kg** (0.25 joule/lb). If unsuccessful, may repeat at increasing energy levels: **1.0 joule/kg** (0.5 joule/lb); **2 joules/kg** (1 joule/lb); **4 joules/kg** (2 joules/lb) or manufacturer's biphasic equivalent.

5 Start at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (~20 ml/hour):

5.1 If unable to establish an IV in 2 attempts or 5 minutes transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

6 Transport the patient without delay to the nearest appropriate *HOSPITAL EMERGENCY FACILITY.*

7 Contact Medical Control.

8 If VT persists, administer **AMIODARONE** or **LIDOCAINE HCL** as indicated below:

8.1 Adult patients: ***EMT-Ps only*** (or ***EMT-Cs*** with Medical Control) administer **AMIODARONE** 150 mg IV bolus once.

8.2 Pediatric Patients: ***EMT-Ps only*** (or ***EMT-Cs*** with Medical Control) administer **AMIODARONE** 5 mg/kg IV bolus once (maximum dose: 150mg).

OR

8.3 All patients: Administer **LIDOCAINE HCL** 1.0- 1.5 mg/kg IV push (or 2.0- 3.0 mg/kg by endotrachael tube), followed by **NORMAL SALINE** flush.

8.4 If VF/VT persists, repeat administration of **LIDOCAINE HCL** every 3-5 minutes to a maximum total of 3mg/kg of **LIDOCAINE HCL**.

9 For all patients: If VT is converted to a perfusing rhythm contact Medical Control for permission to administer **AMIODARONE** or **LIDOCAINE HCL.** A loading dose may be considered if not already given with careful attention to the risk of side effects. Typically if a drug has already been administered, that same drug should be continued if maintenance infusion is administered. Due to the high risk of side effects with incorrect dosage, **AMIODARONE** or **LIDOCAINE HCL** infusions may only be administered by IV Infusion Pump. **AMIODARONE** must be mixed with **D_5W** using a "PVC-free" bag and tubing and run as an isolated IV (not piggybacked into **NORMAL SALINE** or **LACTATED RINGER's** solution).

9.1 ***EMT-Cs*** and ***EMT-Ps*** with IV pump training **ONLY**: May administer **AMIODARONE** by Infusion Pump at a rate as directed by Medical Control (typically 1- 15 mg/min – faster rates are associated with a higher risk of hypotension).

OR

9.2 ***EMT-Cs*** and ***EMT-Ps*** with IV pump training **ONLY**: May administer **LIDOCAINE HCL** by IV Infusion Pump at a rate as directed by Medical Control (typically 1-4 mg/min/ 30-50 mcg/kg/min). Lower doses should be used in patients with hepatic dysfunction or > 70 years of age. Infusion should be discontinued if any signs of toxicity or decompensation appear.

10 With authorization from Medical Control, administer **ADENOSINE** (Adenocard®) as indicated below:

Adenosine should not be given to patients taking Persantine or Aggrenox, or patients who have had heart transplants, as the effects may be prolonged and unpredictable.

10.1 Adult patients: administer **ADENOSINE** 12 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20 mL **NORMAL SALINE** or **LACTATED RINGER'S** solution.

10.1.1 If initial dose does not convert rhythm within 1-2 minutes, administer **ADENOSINE** 12 mg, rapid push (1-3 seconds), followed by rapid flush with 20 ml **NORMAL SALINE** or **LACTATED RINGER'S** solution.

10.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): administer **ADENOSINE** (Adenocard®) 0.2 mg/kg (maximum first dose: 12 mg), rapid IV push (over 1-3 seconds), followed by a rapid flush with 2-3 mL of **NORMAL SALINE** or **LACTATED RINGER'S** solution.

10.2.1 If initial dose does not convert rhythm within 1-2 minutes, administer **ADENOSINE** 0.2 mg/kg (maximum dose: 12 mg), rapid IV push (over 1-3 seconds), followed by a rapid flush with 2-3 mL of **NORMAL SALINE** or **LACTATED RINGER'S** solution.

11 If VT is converted to another rhythm, follow all appropriate protocols.

12 Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Abdominal Pain

TREATMENT	***Quick Reference***
1. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.	*Physical Exam & Vital Signs*
1.1 Attempt to determine the following:	*Consider:*
1.1.1 nature, duration, location and radiation of pain	*Pain*
1.1.2 associated symptoms or complaints	*Symptoms*
1.1.3 related history (eg: trauma, ingestion, pregnancy, surgery)	*History*
1.2 Examine abdomen for tenderness, guarding, masses.	*Inspect & Palpate*
2. If abdominal pain is associated with abdominal trauma, follow the *Trauma* protocol, with specific reference to **Further Care of Abdominal Trauma**.	*R/O trauma*
3. Allow the patient to assume a comfortable position, unless contraindicated. Flexion of the knees and hips may help decrease pain.	*Patient comfort*
4. If there is evidence of shock, follow the *Shock* protocol.	*Treat shock*
5. Administer **OXYGEN** with the highest-concentration device tolerated.	*High conc O_2*
∇ ***ALS PERSONNEL***	
6. Consider placing the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*	*Monitor ECG*
7. Consider starting an IV access device or an IV of **NORMAL SALINE** or **LACTATED RINGER'S** to run at KVO rate.	*IV Access or IV: NS or LR*
7.1 Adult patients: If an IV has been started, administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (20–30 mL/hour).	*Adult: 20–30 mL/hr*
	
7.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): If an IV has been started, administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (10–20 mL/hour).	*Pedi: 10–20 mL/hr*
7.3 If unable to establish IV in ≤2 attempts (<5 minutes) transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.	
∇ ***ALL EMTs***	
8. Contact Medical Control.	*Med Control*
9. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.	*Transport*
10. Document all incident information by completing the RI *EMS Ambulance Run Report.*	*Document*

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Anaphylaxis and Severe Bee Sting Allergy

RECOGNITION

Exposure to a substance (e.g., bee sting, peanuts, penicillin, etc) to which the patient is profoundly sensitive, causing signs of shock, wheezing, respiratory distress or hives.

TREATMENT

1 Maintain a patent airway; assist ventilation as necessary.

2 Administer **OXYGEN** with the highest-concentration device tolerated.

3 For patients with severe respiratory distress: Administer **EPINEPHRINE 1:1000** (1mg/mL) as indicated below. For patients over 50 years of age, or who have a known cardiac history, contact Medical Control prior to administration of **EPINEPHRINE.**

3.1 Adult patients: Administer **EPINEPHRINE 1:1000** 0.3 mg (0.3mL) SQ by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen®** auto injector.

3.2 Pediatric patients: Administer **EPINEPHRINE 1:1000** SQ by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen®** auto injector, as specified below:

3.2.1 Pediatric patients >20 kg (50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.3 mL (0.3 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen®** auto injector.

3.2.2 Pediatric patients 10-20 kg (25-50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.2 mL (0.2 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or by an **EpiPen®Jr.** auto injector.

3.2.3 Pediatric patients <10 kg (25 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.1 mL (0.1 mg) by drawing from ampules or vials or with a prefilled syringe (eg: Ana-Kit®).

4 Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

5 Transport should not be delayed; administration of **EPINEPHRINE** and other interventions can be undertaken en route to a *HOSPITAL EMERGENCY FACILITY.*

▼ ***ALS PERSONNEL***

6 Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.

7 Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate (~20 ml/hr). If unable to start an IV in 2 attempts or 5 minutes, transport to a *HOSPITAL EMERGENCY FACILITY*. Any further attempts must occur en route.

8 If respiratory distress or shock do not improve, repeat **EPINEPHRINE 1:1000** (1 mg/mL):

8.1 Adult patients: Administer **EPINEPHRINE 1:1000** 0.3 mg SQ.

8.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **EPINEPHRINE 1:1000** as indicated below:

8.2.1 Patients >20 kg (50 lbs): Administer **EPINEPHRINE 1:1000** 0.01mL/kg (0.01 mg/kg) SQ to a maximum of 0.3 mL (0.3 mg).

8.2.2 Patients 10-20 kg (25-50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.2 mL (0.2 mg).

8.2.3 Patients <10 kg (25lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.1 mL (0.1 mg).

8.3 Alternate doses/routes of administration of **EPINEPHRINE** for patients with severe respiratory distress or hypotension:

8.1.1 Adult patients: Administer **EPINEPHRINE 1:10,000** 0.01 mg/kg to a maximum of 0.5 mg IV over 5-10 minutes.

8.3.2 If unable to establish an IV, administer **EPINEPHRINE 1:1,000** 2.0-2.5 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube.

▼ ***ALS PERSONNEL (CONT'D.)***

8.3.3 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **EPINEPHRINE 1:10,000** 0.005-0.020 mg/kg (to a maximum of 0.5 mg) IV over 5-10 minutes.

8.3.4 If unable to establish an IV, administer **EPINEPHRINE 1:1,000** 0.1 mg/kg (0.1 mL/kg), diluted to 3-5 mL with **NORMAL SALINE** by endotracheal tube.

9 Administer **DIPHENHYDRAMINE** (Benadryl®) as indicated below:

9.1 Adult patients: Administer **DIPHENHYDRAMINE** (Benadryl®) 20-50 mg PO, IM, or IV.

9.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **DIPHENHYDRAMINE** (Benadryl®) 1 mg/kg PO, IM, or IV.

10 Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), as indicated below:

10.1 Adult patients: Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), 100 mg IV.

10.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), 1-2 mg/kg IV.

▼ ***ALS PERSONNEL (CONT'D.)***

11 ***EMT-Ps only*** (with Infusion Pump training) may perform either or both of the following. ***EMT-Cs*** (with Infusion Pump training) must contact Medical Control for authorization to administer **DOPAMINE HCL** as indicated below. Due to the high risk of side effects due to incorrect dosages, **DOPAMINE HCL** may only be administered by Infusion Pump.

11.1 Administer **DOPAMINE HCL** by IV infusion as indicated below:

11.1.1 Adult patients: Administer **DOPAMINE HCL** at 2-20 mcg/kg/min IV by Infusion Pump (preparation: 400 mg in 250 mL NS yields 1600 mcg/mL) and titrate the rate to achieve a systolic blood pressure >90 mm Hg.

11.1.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **DOPAMINE HCL** as indicated on a pediatric dosing device, at 2-20 mcg/kg/min by IV Infusion Pump and titrate the rate to achieve a systolic blood pressure above the appropriate age-related value (refer to the following table).

AGE		**Systolic BP**	
Newborn	(birth-1 month)	**>40**	NOTE: absent radial pulse suggests hypotension
Infant	(1 month – 1 year)	**>60**	
Pre-School	(1-6 years)	**>75**	
School Age	(6-12 years)	**>85**	
Adolescent	(12-16 years)	**>90**	

11.2 ***EMT-Ps only*** (with Infusion Pump training and with authorization from Medical Control) may administer **EPINEPHRINE** by IV infusion. Due to the high risk of side effects due to incorrect dosages, **EPINEPHRINE** may only be administered by an IV Infusion Pump as indicated below:

11.2.1 Infuse **EPINEPHRINE** 0.05-0.20 mcg/kg/min by IV Infusion Pump. Typical adult dose: 2-10 mcg/min.

11.2.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Infuse **EPINEPHRINE** 0.05-0.20 mcg/kg/min by IV Infusion Pump. Typical pediatric dose: 0.1-1 mcg/min.

▼ ***ALL EMTs***

12 Contact Medical Control.

13 Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

14 If further respiratory or ventilatory problems arise, follow the *Airway Management and Respiratory Support* protocol.

15 If signs of shock are present, follow the *Shock* protocol.

16 Document all incident information by completing the *RI EMS Ambulance Run Report*

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Asthma (COPD)

RECOGNITION

Shortness of breath; difficulty breathing manifested by use of ancillary muscles of respiration; flaring nostrils, intercostal, supra-clavicular, or sternal retractions (child); musical wheezes; respiratory rate >30 (adult); prolonged expiratory phase of respiration; previous history of asthma or COPD (Chronic Obstructive Pulmonary Disease).

TREATMENT

1. Maintain a patent airway; assist ventilation if needed.
2. Administer **OXYGEN** with the highest-concentration device tolerated.
3. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.
4. For patients with severe respiratory distress, administer **EPINEPHRINE 1:1000 (1 mg/mL)** as indicated below. For patients over 50 years of age, or who have a known cardiac history, contact Medical Control prior to administration of **EPINEPHRINE.**

    4.1 Adult patients: Administer **EPINEPHRINE 1:1000** 0.3 mg (0.3 mL) SQ by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen®** auto injector.

4.2 Pediatric patients: Administer **EPINEPHRINE 1:1000** SQ by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen**® auto injector, as specified below:

4.2.1 Pediatric patients >20 kg (50 lbs): Administer **EPINEPHRINE 1:1000** 0.01mL/kg (0.01 mg/kg) SQ, to a maximum of 0.3 mL (0.3 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or an **EpiPen**® auto injector.

4.2.2 Pediatric patients 10-20 kg (25-50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.2 mL (0.2 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana-Kit®) or by an **EpiPen® Jr.** auto injector.

4.2.3 Pediatric patients <10 kg (25lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ, to a maximum of 0.1 mL (0.1 mg) by drawing from ampules or vials or with a pre-filled syringe (eg: Ana Kit®)

5. If further respiratory or ventilatory problems arise, follow the *Airway Management and Respiratory Support* protocol.

6. Contact Medical Control, for authorization to administer bronchodilator therapy as indicated below:

   6.1 All patients ≥ 6 months of age: Administer 2.5 mg of **ALBUTEROL** (Proventil®, Ventolin®) 0.083% solution (or 0.5 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5-15 minutes. May repeat x 2 en route.

6.2 For pediatric patients < 6 months: Administer 1.25 mg of **ALBUTEROL** 0.083% solution (or 0.25 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE**) by nebulizer over 5 to 15 minutes. May repeat x 2 en route.

▼ ***ALS PERSONNEL***

7. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

8. Start at least one IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (~20 ml/hour)

   8.1 If unable to establish an IV in 2 attempts or 5 minutes transport the patient to a *HOSPITAL EMERGENCY FACILITY.*

▼ ***ALL EMTS***

9. If respiratory distress or shock do not improve, repeat **EPINEPHRINE 1:1000** (1 mg/mL).

   9.1 Adult patients: Administer **EPINEPHRINE 1:1000** 0.3 mg SQ.

9.2 Pediatric patients < 5 feet tall (<35kg/75lbs): Administer **EPINEPHRINE 1:1000**, as indicated below:

9.2.1 Patients > 20 kg (50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.3 mL (0.3 mg)

9.2.2 Patients 10-20 kg (25-50 lbs): Administer **EPINEPHRINE 1:1000** 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.2 mL (0.2 mg).

9.2.3 Patients < 10 kg (25 lbs): Administer **EPINEPHRINE 1:1000**, 0.01 mL/kg (0.01 mg/kg) SQ to a maximum of 0.1 mL (0.1 mg).

▼ ***ALS PERSONNEL***

10. Alternate doses/routes of administration of **EPINEPHRINE** for patients with severe respiratory distress or hypotension:

10.1 Adult patients: Administer **EPINEPHRINE 1:10,000** 0.01 mg/kg to a maximum of 0.5 mg IV over 5-10 minutes.

10.1.1 If unable to establish an IV, administer **EPINEPHRINE 1:1000** 2.0-2.5 mg diluted in 10 mL **NORMAL SALINE** by endotracheal tube.

10.2 Pediatric patients < 5 feet tall (<35 kg/75 lbs): Administer **EPINEPHRINE 1:10,000** 0.005-0.020 mg/kg (to a maximum of 0.5 mg) IV over 5-10 minutes.

10.2.1 If unable to establish an IV, administer **EPINEPHRINE 1:1000** 0.1 mg/kg (0.1 mL/kg), diluted to 3-5 mL with **NORMAL SALINE** by endotracheal tube.

11. As an alternative to **EPINEPHRINE,** administer **TERBUTALINE** (Brethine®, Bricanyl®) as indicated below:

11.1 Adult patients: Administer **TERBUTALINE** (Brethine®, Bricanyl®) 0.25 mg SQ.

11.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer **TERBUTALINE** (Brethine®, Bricanyl®) 0.01 mg/kg SQ, to a maximum of 0.25 mg/dose.

12. Administer **ALBUTEROL** (Proventil®, Ventolin®) as indicated below:

    12.1 All patients ≥ 6 months of age: Administer 2.5 mg of **ALBUTEROL** 0.083% solution (or 0.5 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE)** by nebulizer over 5-15 minutes. May repeat x 2 en route.

    12.2 For pediatric patients < 6 months: Administer 1.25 mg of **ALBUTEROL** 0.083% solution (or 0.25 mL of 0.5% solution mixed with 2.5 mL **NORMAL SALINE)** by nebulizer over 5 to 15 minutes. May repeat x 2 en route.

13. Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), as indicated below:

    13.1 Adult patients: Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®) 100 mg IV.

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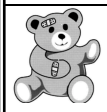


    13.2 Pediatric patients < 5 feet tall (<35 kg/75 lbs): Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), 1-2 mg/kg IV.

▼ ***ALS PERSONNEL***

14. Contact Medical Control.

    14.1 With authorization from Medical Control, ***EMT-Ps only*** with IV pump training **ONLY** may administer **EPINEPHRINE** by Infusion Pump. Due to the high risk of side effects with incorrect dosages **EPINEPHRINE** infusions may only be administered by IV Infusion Pump as indicated below:

        14.1.1 Infuse **EPINEPHRINE** 2-10 mcg /min by IV Infusion Pump.

▼ ***ALL EMTs***

15. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

16. Document all incident information by completing the *RI EMS Ambulance Run Report*.

Burns

TREATMENT

1 **Stop the burning process.** Remove smoldering, non-adherent clothing.

2 Assess the airway and follow the *Airway Management and Respiratory Support* protocol, if necessary. Check for breathing and pulse. If not present, start CPR.

3 Remove the patient's clothing and rings (but **do not** pull off skin or tissue).

4 Suspect an inhalation injury if any of the following is present on assessment:

- 4.1 Closed space burn (facial burn; singed nasal hairs, beard or mustache)
- 4.2 Sooty or bloody sputum
- 4.3 Difficulty breathing or brassy cough

5 Assist ventilation with a bag-valve-mask device and high-flow **OXYGEN**, if necessary; or administer **OXYGEN** by highest-concentration device tolerated if respirations are normal.

- 5.1 Do not use an esophageal obturator airway.
- 5.2 ***EMT-Ps only***: Consider early intubation for patients with signs of inhalation injury or respiratory distress due to increased incidence of obstruction from airway edema.

5.1 For pediatric patients <5 feet tall (<35 kg/75 lbs) who demonstrate respiratory distress from suspected upper airway swelling, administer **EPINEPHRINE** 1:1000 as indicated below. BLS personnel must contact Medical Control for authorization.

5.1.1 Administer **EPINEPHRINE** 5 mL of 1:1000 solution by nebulizer over 5-15 minutes. May repeat once if necessary.

6 Assess for any trauma that may not have been suspected initially.

7 Wash chemical burns with copious amounts of clean water, **NORMAL SALINE** or other appropriate solutions/decontaminants.

- 7.1 For exposure to hydrofluoric acid (HF), apply **CALCIUM GLUCONATE** 2.5% topical gel, if available, directly to the exposed area.

8 In burns of <10% of body surface area, apply moist saline dressings to comfort the patient. (Third degree burns are not usually painful).

8.1 Use aseptic technique as much as possible.

8.2 Cover burned areas >10% of body surface area with sterile dressings or sheets.

9 Do not allow the patient to consume any food or liquids.

▼ ***ALS PERSONNEL***

10 For any patient with a serious burn (2nd and/or 3rd degree >20% of the body surface area), start a large bore IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution, as indicated below.

10.1 Adult patients: Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at 300mL/hour; or "wide open" if there is evidence of shock.

10.2 Pediatric patients <5 feet tall (<35 kg/75lbs): Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution, 20 mL/kg/hr; or as 20 mL/kg boluses by rapid IV push if there is evidence of shock.

10.3 If unable to establish an IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY.* Any further attempt at IV placement must occur en route.

11 Contact Medical Control. For patients exhibiting moderate to severe pain, Medical Control may authorize ALS personnel to administer **MORPHINE SULFATE,** following the *Pain Management and Sedation* protocol.

▼ ***ALL EMTs***

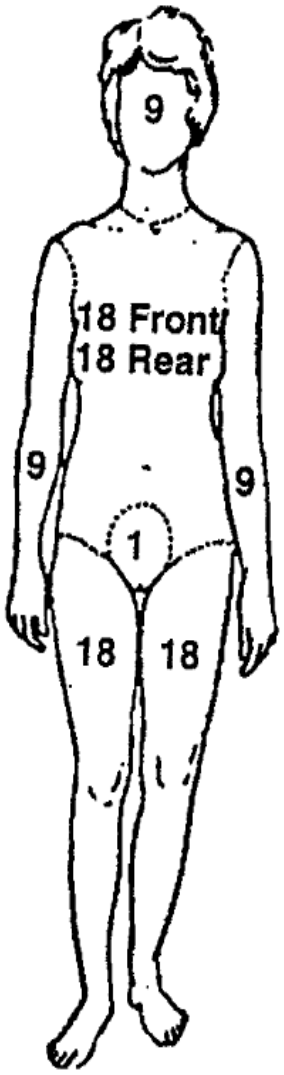
12 Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.* Under certain circumstances, transport by air ambulance may be indicated. Refer to *Air Ambulance* protocol.

13 For any serious burn of the body and for all inhalation injuries, contact Medical Control en route. Refer to *Burn Injury Chart.*

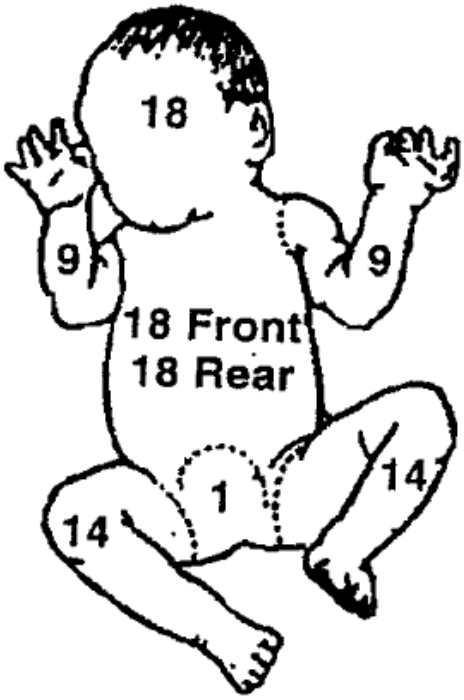
14 Re-evaluate and monitor for airway distress.

15 Document all incident information by completing the *RI EMS Ambulance Run Report*.

Burn Injury Chart



Children ≥ 8 Years & Adults



Infants & Children < 8 Years

Numbers represent percentage of body surface area (BSA).

The area of the patient's palm (hand without fingers) = 1% of the body surface area.

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Cold Exposure - Frostbite

TREATMENT

	Quick Reference
1. Assess patient; obtain initial vital signs; determine mental status; frequently reassess patient's condition. If patient may be hypothermic, follow the *Cold Exposure-Hypothermia* protocol.	*Physical Exam Mental Status, & Vital Signs*
2. Avoid trauma to injured areas (do not rub; do not break blisters).	*Move patient*
3. Apply dry sterile dressings as padding over injured areas and splint, avoiding pressure or constriction. Do not allow the patient to use injured parts.	*Immobilize injury*
4. Do not apply snow or ice; but do not thaw injured areas if there is a chance that they may refreeze before reaching the hospital.	*Don't thaw if refreezing possible*
5. Keep the frozen part away from direct heat, but keep the patient warm.	*Warm patient*
6. Contact Medical Control.	*Med Control*
7. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.	*Transport*
8. Document all incident information by completing the *RI EMS Ambulance Run Report*.	*Document*

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Cold Exposure – Hypothermia

RECOGNITION

Patients with history of or exposure to conditions that may lead to local (extremities, ears, tip of nose etc.) or generalized drop in body temperature sufficient to cause alteration in mental status, vital signs, or damage to body tissues. Note that hypothermia and cold injury often occur at temperatures above freezing and that patients at extremes of age and patients taking some medications are at particular risk for cold injury and hypothermia.

TREATMENT

1. Perform a primary survey. Handle hypothermic patients gently; jarring movements can cause cardiac arrest.

    1.1 If the patient is unconscious, not breathing, and pulseless (check for 30-45 seconds as hypothermia may cause extreme bradycardia), follow the *Cardiac Arrest* protocol and the current guidelines of the American Heart Association for care of hypothermic patients. Note that defibrillation sequence may be different for patients with severe hypothermia (Defibrillation may be delayed until the patient is warmed).

    1.2 Secure the airway. Suction as necessary. If the patient has signs of respiratory distress follow the *Airway Management and Respiratory Support* protocol.

    1.3 Administer **OXYGEN** with the highest concentration device tolerated; assist ventilations as necessary. When ever possible, use warmed (40-42º C, 104-107º F) humidified **OXYGEN.**

2. Assess the patient, obtain initial vital signs, and frequently reassess the patient's condition.

    2.1 If indicated, remove wet clothing by cutting to limit patient movement.

    2.2 Prevent heat loss by covering the patient with dry blankets (or sleeping bags, etc.) and providing a warmed environment for the patient as soon as possible. If available, place heat sources (warmed IV bags, wrapped hot packs, etc.) at the patient's neck, armpits, and groin.

▼ *ALS PERSONNEL*

3. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.

4. Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution, to run at KVO (~20ml/hour). Use warmed IV fluids (40-42º C, 104-107º F) whenever possible.

    4.1 If unable to establish an IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

5. Contact Medical Control *prior to* any drug administration in cases of severe hypothermia (core temperature <29.4º C [85ºF]).

6. Contact Medical Control.

7. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*

8. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Dyspnea (Shortness of Breath) Without Airway Obstruction

TREATMENT

1. Allow patient to chose a comfortable position, unless hypotensive. Hypotensive patients should be supine. Assist ventilation, as necessary.

2. Administer **OXYGEN** with the highest-concentration device tolerated.

3. Assess patient; obtain initial vital signs; frequently reassess patient's condition.

   3.1 If dyspnea is secondary to another apparent condition, such as asthma, COPD, CHF, trauma, chest pain or, allergic reaction, follow all appropriate protocols.

   3.2 For patients who demonstrate severe dyspnea with stridor from suspected upper airway swelling, administer **EPINEPHRINE 1:1000** as indicated below:

   3.1.2. **(BLS personnel with Medical Control ONLY)** Administer **EPINEPHRINE 1:1000** 5 ml by nebulizer over 5- 15 minutes. May repeat once if necessary.

▼ ***ALS PERSONNEL***

4. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

5. Start and IV access device or at least one IV of **NORMAL SALINE** or **LACATATED RINGER'S** to run at KVO rate (~20ml/hour).

   5.1 If unable to establish an IV in 2 attempts or 5 minutes transport the patient to a *Hospital Emergency Facility*. Any further attempt at IV placement must occur en route.

▼ ***ALL EMTs***

6. If there is evidence of respiratory failure (adult respiratory rate <10 or >30, marked effort to breathe, cyanosis, change in mental status, or lethargy), follow the *Airway Management and Respiratory Support protocol:*

   6.1 Assist ventilations.

   6.2 Consider advanced airway management.

7. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*

8. Contact Medical Control.

9. Document all incident information by completing the RI EMS Ambulance Run Report.

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Heat Cramps and Heat Exhaustion

RECOGNITION

1. Profuse sweating with or without adequate replacement of water but with inadequate replacement of salt.
2. Severe painful muscular cramping of leg and abdominal muscles.
3. The mental state is clear in heat cramps; mental status may be agitated (but not confused) in heat exhaustion.
4. Skin wet and warm with normal color, progressing to moist, cool and pale in heat exhaustion.
5. Core temperature normal or slightly elevated.
6. Generalized weakness, headache, and nausea/vomiting may be present with heat exhaustion.

TREATMENT

	Quick Reference
1. Assess patient; obtain initial vital signs; determine mental status; frequently reassess patient's condition.	*Physical Exam Mental Status & Vital Signs*
2. Move patient to a cooler area.	*Move patient*
3. Loosen or remove non-essential clothing.	*Aid heat loss*
4. If there is evidence of shock, elevate the patient's legs and follow the *Shock* protocol.	*Treat shock*
5. Give water or oral rehydration/electrolyte solution (eg: Gatorade®) PO, if patient is alert and swallows easily.	*PO fluids*
6. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.	*Transport*
7. Contact Medical Control.	*Med Control*
8. Document all incident information by completing the *RI EMS Ambulance Run Report.*	*Document*

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Heat Stroke

RECOGNITION

1. Air temperature usually 90° F (32.2° C) or above, with high humidity.
2. Usually affects elderly people or those with medical problems.
3. Core temperature 103° F (39.4° C) to 106° F (41.1° C).
4. Absence of sweating (but patients with exertional heat stroke may still be sweating).
5. Skin warm, red and dry (except in exertional heat stroke).
6. Blood pressure is low in 50% of patients.
7. Patients demonstrate confusion or impaired consciousness, or become comatose.
8. Rapid breathing.

TREATMENT

	Quick Reference
1. Assess patient; obtain initial vital signs; determine mental status; frequently reassess patient's condition.	*Physical Exam, VS & Mental Status*
2. Provide rapid cooling as soon as possible.	*Rapid cooling*
2.1 Remove to cool place; open windows; use fans if available.	*Convection*
2.2 Keep patient wet with cool water.	*Evaporation*
3. Administer **OXYGEN** with the highest-concentration device tolerated.	*High conc O_2*
▼ ***ALS PERSONNEL***	
4. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*	*Monitor ECG*
5. Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution:	*IV: NS or LR*
5.1 Adult patients: administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at 200 mL/hour, or "wide open" if there is evidence of shock.	
	
5.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at 20 mL/kg/hour; or as 20 mL/kg boluses by rapid IV push if there is evidence of shock.	
5.3 If unable to establish IV in ≤2 attempts, (<5 minutes) transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.	
▼ ***ALL EMTs***	
6. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*	*Transport*
7. Contact Medical Control.	*Med Control*
8. Document all incident information by completing the *RI EMS Ambulance Run Report.*	*Document*

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Impaired Consciousness

TREATMENT	***Quick Reference***
1. Unless able to rule out trauma, stabilize neck and spine with cervical collar and spineboard as soon as possible.	*? Trauma: Immobilize*
2. Perform initial assessment while protecting the airway with appropriate maneuver.	*Initial Survey*
3. Position on left side (unless contraindicated), and remove secretions if needed.	*Left lateral Position.*
4. Administer **OXYGEN** with the highest-concentration device tolerated; assist ventilations as necessary.	*High conc O_2*
5. If further respiratory or ventilatory problems arise, follow the *Airway Management and Respiratory Support* protocol.	
6. Obtain history from family and/or bystanders including medications.	*Obtain history*
7. Assess the patient; determine level of consciousness with the **AVPU** method or **Glasgow Coma Scale**.	*Physical Exam LOC*
7.1 Obtain initial vital signs; frequently reassess patient's condition.	*Vital Signs*
7.1.1 Evaluate pupillary response and size.	*Pupils*
7.1.2 Check for breath odors (alcohol or acetone).	*Breath odors*
7.1.3 Examine for needle tracks.	*Needle tracks*
7.1.4 Examine for medic-alert tags.	*Medic-alert*
8. If signs of shock are present, follow the *Shock* protocol.	*Treat Shock*
∇ ***BLS PERSONNEL***	
9. If electronic glucose meter is available, determine blood glucose (bG) concentration. Contact Medical Control and report bG level. If bG is <60 mg/dl or unknown, with authorization from Medical Control, EMTs may administer **GLUCAGON**, as indicated below:	*Med Control (Glucagon)*
9.1 Adult patients administer **GLUCAGON**, if available, 1 mg (1 unit) IM or SQ.	*Adult: 1 mg*
 9.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): administer **GLUCAGON**, if available, 0.1 mg/kg, to a maximum of 1 mg (1 unit), IM or SQ.	*Pedi: 0.1 mg/kg*

∇ ***ALS PERSONNEL***	
10. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*	*Monitor ECG*
11. Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution:	*IV: NS or LR*
11.1 Adult patients: administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (20–30 mL/hour).	
 11.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (10–20 mL/hour); or administer boluses of 20 mL/kg over 5–10 minutes for patients in shock.	
11.3 If unable to establish IV in ≤ 2 attempts, (<5 minutes) transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.	
12. Draw a sample of the patient's blood for blood glucose (bG) analysis. This may be done while starting the IV.	*Draw blood*
13. If electronic glucose meter is available, determine blood glucose (bG) concentration.	*(Check bG)*
14. Adult patients with bG <60 mg/dL, as determined by electronic glucose meter, or unknown:	*Adult Pt:*
14.1 Administer **THIAMINE HCl** 100 mg IV push or IM.	*Thiamine*
14.2 Administer **DEXTROSE ($D_{50}W$)** 25 gm (50 mL) IV over 2 minutes. Repeat once in 5 minutes if there is no improvement in mental status.	*$D_{50}W$*
14.2.1 Do not administer **DEXTROSE** to a pregnant patient. Administer **GLUCAGON** 1 mg (1 unit) IM or SQ, in place of **DEXTROSE**.	*(Pregnant Patient: Glucagon)*
14.2.2 If unable to establish an IV, administer **GLUCAGON** 1 mg (1 unit) IM or SQ.	*(Glucagon)*
15. Adult patients: administer **NALOXONE HCl** (Narcan®) 2.0 mg IV push (or IM, SQ). Repeat at 3 minute intervals until narcotic overdose is reversed, to a maximum total dose of 10 mg.	*Adult Pt: Naloxone*
15.1 Alternative method of administration: administer **NALOXONE HCl** (Narcan®) 0.4 mg IV push (or IM, SQ). Repeat at 1 minute intervals until narcotic overdose is reversed, to a maximum total dose of 10 mg.	
15.2 Alternative route of administration, if an endotracheal tube is in place; administer **NALOXONE HCl** (Narcan®) 2.0 mg diluted in 10 mL **NORMAL SALINE**, by endotracheal tube.	

▽ ***ALS PERSONNEL***	
	
16. Pediatric patients <5 feet tall (<35 kg/75 lbs) with bG <60 mg/dL or unknown:	*Pediatric Pt:*
16.1 Administer **DEXTROSE**. Use **$D_{25}W$** (may be prepared by diluting **$D_{50}W$** 1:1 with sterile water or NS) and administer as indicated on Broselow® Tape, at 2 mL/kg (0.5 gm/kg) over 5 minutes.	*$D_{25}W$ per Broselow® Tape*
16.2 If narcotic overdose is suspected, administer **NALOXONE HCl** (Narcan®) as indicated on Broselow® Tape, at 0.1 mg/kg IV push (or IM, SQ, by ETT). Repeat at 3 minute intervals until narcotic overdose is reversed, to a maximum total dose of 10 mg.	*(Naloxone per Broselow® Tape)*

▽ ***ALL EMTS***	
17. Contact Medical Control.	*Med Control*
18. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*, bringing all available medications, vials, and needles.	*Transport*
19. Document all incident information by completing the *RI EMS Ambulance Run Report*.	*Document*

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Drowning

RECOGNITION

Water submersion with an altered mental status and respiratory distress or a cessation of vital functions. **Note: for hypothermic patients, the carotid pulse should be palpated for 30-45 seconds prior to initiation of CPR. If a slow pulse is present, CPR is not necessary.**

TREATMENT

1. Coordinate the rescue response to rapidly gain access and remove the victim from the water utilizing sufficient personnel and equipment to ensure safe adherence to protocol.

2. If the victim is unresponsive, not breathing, and has no carotid pulse, rapidly remove the victim from the water while controlling the cervical-spine with manual stabilization. Place victim on a long spineboard, clear the airway, begin cardiopulmonary resuscitation, and apply a cervical collar. Follow the *Cardiac Arrest* protocol.

3. Spinal injury should be suspected for an unwitnessed event, an unconscious patient, or if traumatic water entry occurred prior to the event. If there is any question of water entry injury, and adequate resources are available, utilize manual stabilization to immobilize and C-spine while in the water and place victim on a submerged long spineboard. Apply a cervical collar.

4. Maintain a patent airway; be prepared for vomiting; suction the patient as required.

    4.1 If signs of upper airway obstruction are present, follow the *Airway Management and Respiratory Support* protocol.

5. Administer **OXYGEN** with the highest-concentration device tolerated; assist ventilations as necessary.

6. If the victim was subject to cold-water immersion, follow the *Cold Exposure-Hypothermia* protocol.

7. If the victim was involved in underwater diving with diving equipment, contact Medical Control.

    7.1 With authorization from Medical Control, contact the National **Divers' Alert Network** (919-684-8111 or 919-684-2948) for consideration of transport to a *HYPERBARIC TREATMENT FACILITY*.

7.1.1 Evaluate pupillary response and size.

7.1.2 Check for breath odors (alcohol or acetone).

7.1.3 Examine for needle tracks.

7.1.4 Examine for Medic-Alert® tags.

8. Contact Medical Control

9. Transport patient without delay to the appropriate *HOSPITAL EMERGENCY FACILITY* or *HYPERBARIC TREATMENT FACILITY* as directed by Medical Control.

10. Document all incident information by completing the *RI EMS Ambulance Run Report*

Newborn Resuscitation

RECOGNITION

Infants NOT in need of resuscitation can usually be identified by having ALL of the following: Full-term gestation, clear amniotic fluid, breathing or crying, good muscle tone. Infants missing ANY of these four characteristics, or with other signs of distress, should be evaluated and treated as indicated below.

TREATMENT

1. Provide warmth and minimize heat loss from the infant.

2. If infant is **not vigorous** (HR<100, poor muscle tone, poor respiratory effort or color), and the amniotic fluid is not clear, manage the airway as below:

   2.1 Suction the infant's mouth then nose using a bulb syringe. Suctioning should be limited to less than 5 seconds to avoid hypoxia or bradycardia.

   2.2 Provide positive pressure ventilation using BVM technique following the American Heart Association (AHA) guidelines.

   2.3 ***EMT-Ps*** only: Perform endotracheal intubation and tracheal aspiration prior to stimulating the infant. Use Pediatric Dosing Device to estimate patient weight based upon length and the following table guidelines for proper endotracheal tube size and depth of insertion.

Weight kg	Gestational Age weeks	Laryngoscope Blade Size	Endotracheal Tube Size	Depth of Insertion from Upper Lip
<1	<28	0	2.5	6.5-7.0
1-2	28-34	0	3.0	7.0-8.0
2-3	34-38	0-1	3.5	8.0-9.0
>3	>38	1	3.5-4.0	>9.0

3. Further minimize heat loss from the infant:

   3.1 Dry the infant thoroughly.

   3.2 Cover the infant's head.

   3.3 Wrap the infant in plastic wrap and blankets or towels.

   3.4 Increase the temperature in the room (and ambulance) as much as possible.

4. Position the infant to establish and maintain a patent airway.

5. Evaluate respiratory rate, skin color and heart rate.

   5.1 If the infant is apneic or has weak or gasping respirations, provide positive pressure ventilations with BVM and 100% **OXYGEN** at 40-60 respirations/ minute according to the American Heart Association (AHA) guidelines..

   5.2 If breathing is adequate, evaluate color. If cyanotic or in respiratory distress, administer **OXYGEN** by "blow-by" method and monitor continuously.

   5.3 Evaluate heart rate (brachial, umbilical, or apical pulse) and monitor continuously to guide resuscitation.

      5.3.1 If the heart rate is <60, provide positive pressure ventilation with 100% **OXYGEN** and chest compressions according to the American Heart Association (AHA) guidelines.

         5.3.1.1 ***EMT-Ps only:*** Consider endotracheal intubation if chest compressions or assisted ventilations are required for more than 90 seconds. Use the table above in section 2.3 as a guide.

      5.3.2 If the heart rate is between 60 and 100, provide positive pressure ventilation with BVM and 100% **OXYGEN** according to the American Heart Association (AHA) guidelines.

      5.3.3 If the heart rate is >100, maintain warmth and reassess frequently.

▼ ***ALS PERSONNEL***

6. Place the patient on a cardiac monitor (and pulse oximeter if available). Observe and record the initial ECG rhythm, and any rhythm changes (and pulse oximetry reading if available). Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.

6.1 If heart rate remains <100 or the patient has signs of shock or as directed by Medical Control, consider obtaining IV access according to the *IV Access and Admixtures (ALS)* protocol.

6.1.2 ***EMT-Ps only*:** consider obtaining IV or IO access according to the *IV Access* protocol. IO is the preferred route, followed by umbilical vein and then peripheral vein.

6.2 If the infant has signs of shock, administer **NORMAL SALINE** 10 mL/kg IV push. This may be repeated twice if signs of shock persist.

6.3 If the heart rate remains <60 despite assisted ventilations and chest compressions, administer **EPINEPHRINE 1:10,000** 0.01-0.03 mg/kg IV. May repeat every 3-5 minutes, if bradycardia or asystole persist.

6.3.1 ***EMT-Ps only:*** If the heart rate remains <60 despite assisted ventilations and chest compressions, administer **EPINEPHRINE 1:10,000** 0.01-0.03 mg/kg IV or IO (preferred route) **OR** 0.1 mg/kg by endotracheal tube. May repeat every 3-5 minutes, if bradycardia or asystole.

▼ ***ALL EMTs***

7. Assess patient; obtain initial vital signs; frequently reassess patient's condition en route.

7.1 Calculate the APGAR scores at 1 and 5 minutes of life. Determination of the APGAR scores should not delay resuscitation.

APGAR Scoring System

PHYSICAL SIGN	***0 POINTS***	***1 POINT***	***2 POINTS***
Heart rate	Absent	<100	>100
Respiratory effort	Absent	Slow, irregular (or weak cry)	Normal (or strong cry)
Muscle tone	Limp	Some flexion	Active motion
Reflex irritability	No response	Grimace; some motion	Cough or sneeze; vigorous cry
Color	Blue, pale	Mucus membranes pink; nail beds blue	Mucus membranes and nail beds pink

8. Contact Medical Control.

9. Transport the infant to the nearest appropriate *HOSPITAL EMERGENCY FACILITY* without delay.

10. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Obstetrical Assistance

TREATMENT	***Quick Reference***
1. Assess patient; obtain initial vital signs; frequently reassess patient's condition.	*Physical Exam & Vital Signs*
1.1 Evaluate the vital signs, especially blood pressure.	*Evaluate VS*
1.1.1 If there is evidence of shock, follow the *Shock* protocol.	*Treat shock*
1.1.2 If swelling and/or high blood pressure are present, be prepared for possible seizure activity (eclampsia).	*Possible seizures*
1.2 Examine the perineum:	*Exam:*
1.2.1 Check for vaginal bleeding.	*? bleeding*
1.2.2 Check for crowning during contraction.	*? crowning*
1.2.3 Check for abnormal presentation (eg: hand, umbilical cord).	*? abnormal presentation*
1.3 Attempt to determine the following information about labor:	*Labor info*
1.3.1 What is the length of time between contractions?	
1.3.2 Have the membranes ruptured? When?	
1.3.3 Is there any bleeding? How much?	
1.3.4 Has the baby's head or any other part appeared?	
1.4 Attempt to determine the following information about the pregnancy:	*Pregnancy info*
1.4.1 Have there been any problems or complications?	
1.4.2 Has the mother delivered any other babies?	
1.4.3 How close to the due date?	
1.4.4 Is there more than one fetus?	
1.4.5 Has there been any drug use?	
2. Determine whether to assist at scene, or transport.	*? Stay or transport*
2.1 If patient is not pushing or bleeding, transport without delay in position of comfort to a *HOSPITAL EMERGENCY FACILITY*.	
2.2 If delivery is in progress or imminent, assist at scene unless complications occur.	
∇ ***ALS PERSONNEL***	
2.3. Consider starting an IV access device or an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution to run at KVO rate (20–30 mL/hour).	*IV Access or IV: NS or LR*

∇ *ALL EMTs*

3. To assist in a normal delivery, follow the *Newborn Resuscitation protocol*, and provide the following care:	*Follow Newborn Resuscitation*
3.1. Administer **OXYGEN** with the highest-concentration device tolerated.	*High conc O_2*
3.2 Position mother for delivery	*Position*
3.3 Whenever possible, use sterile or aseptic technique.	*Aseptic tech.*
3.4 Apply gentle pressure against the baby's head to guide and control delivery.	*Gentle pressure*
3.5 Support the head and thorax as they appear.	*Support body*
3.6 Apply two clamps to cord, approximately 8 inches from baby's abdomen. Cut cord between the clamps.	*Clamp and cut umbilical cord*
3.7 If no active resuscitation is required:	
3.7.1 Dry the infant, cover its head, and wrap the baby to minimize heat loss.	*Dry and warm infant*
3.7.2 Encourage the mother to nurse, to assist uterine contractions.	*Mother to nurse*
4. Transport the mother and the infant(s) without delay to a *HOSPITAL EMERGENCY FACILITY*.	*Transport*
4.1 Unless active resuscitation is required, the infant(s) is (are) to be transported in an appropriate child passenger restraint system.	
5. Contact Medical Control.	*Med Control*
6. Document all incident information by completing the *RI EMS Ambulance Run Report.*	*Document*

Pain Management and Sedation (Optional) [ALS]

TREATMENT

1. For patients exhibiting moderate to severe pain or pulmonary congestion, and with authorization from Medical Control, provide treatment as follows:

   1.1 Assess and record the following signs, and reassess frequently:
   - (a) level of consciousness
   - (b) heart rate, respiratory rate, blood pressure
   - (c) ECG
   - (d) Oxygen saturation, if pulse oximeter is available.

   1.2 Administer **MORPHINE SULFATE** (MSO_4) as indicated below :

   1.2.1 All patients ≥ 6 months of age (˜7 kg/15 lbs): administer **MORPHINE SULFATE** 0.1 mg/kg IV over 2 minutes, with a maximum initial dose of 6 mg.

   1.2.1.1 If unable to establish an IV, administer **MORPHINE SULFATE** 0.1 mg/kg SQ or IM, with a maximum initial dose of 6 mg.

   1.2.1.2 Administer additional doses of 0.05 mg/kg (adult patients: 1-3 mg) IV over 2 minutes (or SQ, IM) at 5-30 minute intervals, until pain is relieved.

   1.2.2 Pediatric patients <6 months of age (˜7 kg/15 lbs): administer **MORPHINE SULFATE** 0.05 mg/kg IV over 2 minutes.

   1.2.2.1 If unable to establish an IV, administer **MORPHINE SULFATE** 0.05 mg/kg SQ or IM.

   1.2.2.2 Administer additional doses of 0.05 mg/kg IV over 2 minutes (or SQ, IM) at 5-30 minute intervals, until pain is relieved.

   1.3 Medical Control may authorize the administration of subsequent doses at 5-minute intervals, to achieve effect.

   1.4 <u>Standing order if patient develops respiratory depression, hypotension, or depressed consciousness</u>:

   1.4.1 Provide appropriate airway and ventilatory support.

1.4.2 Administer **NALOXONE HCI** 0.01 mg/kg IV push (or IM, SQ, or (diluted in **NORMAL SALINE**) by endotracheal tube, PRN). (Note: This dose is appropriate to reduce the side effects induced by therapeutic narcotic use, in contrast to the dose used to reverse narcotic overdose, 0.1 mg/kg).

2. For patients who are to be cardioverted or intubated; or others who would benefit from sedation; and with authorization from Medical Control, provide treatment as follows:

2.1 Assess and record the following signs, and reassess frequently:
(a) level of consciousness,
(b) heart rate, respiratory rate, blood pressure
(c) ECG
(d) Oxygen saturation, if pulse oximeter is available

2.2 Administer **MIDAZOLAM** 0.05-0.1 mg/kg IV over 1 minute, or IM. Adult maximum: 5 mg; pediatric maximum: 2.5 mg.

2.2.1 Allow 2 minutes for effect (10 minutes for IM). Medical Control may authorize the administration of subsequent doses. Recommendation: 25% of initial dose, to a maximum total dose of 0.6 mg/kg, to maintain effect.

2.2.2.1 Pediatric patients <5 feet tall (<35 kg/75lbs): administer **MIDAZOLAM** at 0.05-0.1 mg/kg IV or IM at a rate not to exceed 5mg per minute.

2.3 If patient develops respiratory depression or hypotension, provide appropriate airway, respiratory and ventilatory support.

3. With authorization from Medical Control for certain patients, administer both **MORPINE SULFATE** and **MIDAZOLAM** (which may be combined in the same syringe).

4. Document procedures to provide pain management and sedation by completing the *RI EMS Ambulance Run Report.*

Poisoning and Overdose

TREATMENT

Quick Reference

1. If the patient is unconscious or has impaired consciousness, follow the *Impaired Consciousness* protocol.
   ? Impaired Consciousness
2. Contact the Regional Center for Poison Control & Prevention (1-800-682-9211), or contact Medical Control. As directed, perform one of the following:
   Poison Control (Med Control)

   2.1 Administer **ACTIVATED CHARCOAL** 1 gm/kg (0.5 gm/lb) PO, mixed with water or sorbitol.
   Activated Charcoal

   2.1.1 Administer **ACTIVATED CHARCOAL** only if the patient is fully conscious, or has an endotracheal tube in place.

   2.1.2 ***EMT-Ps only***: administer **ACTIVATED CHARCOAL** by orogastric or nasogastric tube, if unable to administer PO.

   2.1.3 Do not administer **ACTIVATED CHARCOAL** if patient has ingested a hydrocarbon, petroleum distillate, or a caustic substance.

   2.2 Administer **SYRUP OF IPECAC** as indicated below:
   Ipecac

   2.2.1 Patients 8 years of age: administer **SYRUP OF IPECAC** 30 mL (2 tablespoons) PO, followed by at least 8 ounces of water.

   2.2.2 For patients <8 years of age, **SYRUP OF IPECAC** 15 mL (1 tablespoon) PO, followed by at least 4 ounces of water.

   2.2.3 Do not administer **SYRUP OF IPECAC** if:
   Contraindications

      2.2.3.1 the patient has no gag reflex, or is actively seizing or vomiting.
      gag reflex, Sz, vomiting

      2.2.3.2 the patient has ingested a sharp object; hydrocarbon; petroleum distillate; or a caustic substance (acid or alkali).
      ingestion: sharp object, petroleum distillate, caustic

      2.2.3.3 the patient has a bleeding disorder.
      bleeding disorder

   2.2.4 Prepare for vomiting by having large emesis container and suction equipment ready.
   Suction ready

▲ ***ALS PERSONNEL***	
3. Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution:	*IV: NS or LR*
3.1 Adult patients: administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (20–30 mL/hour), or "wide open" if there is evidence of shock.	
 3.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (10–20 mL/hour); or administer boluses of 20 mL/kg boluses by rapid IV push if there is evidence of shock.	
3.3 If unable to establish IV in 2 attempts, (<5 minutes) transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.	
4. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*..	*Monitor ECG*
▲ ***ALL EMTS***	
5. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY* bringing all available medications, vials, and needles.	*Transport* *Bring clues*
6. Contact Medical Control.	*Med Control*
7. Document all incident information by completing the *RI EMS Ambulance Run Report.*	*Document*

Radiation Exposure

TREATMENT

	Quick Reference
1. Contact Medical Control by radio or telephone while en route to the scene. Relay the available information and estimated time of arrival of your unit. Further instructions for decontamination of the patient, your vehicle and yourself will be given to you by Medical Control.	*Contact Medical Control while en route to scene*
2. Use common sense. The time you are exposed and the distance you are away from the source are the exposure factors for contaminants. Once separated from the source, an exposed (not contaminated) person is not a risk to you.	*Common sense: time, distance*
3. Assess patient, obtain initial vital signs, and frequently reassess patient's condition.	*Physical Exam & Vital Signs*
4. If patient's clothing has not been removed by the initial responders, contact Medical Control for guidance on removal of clothing.	*? Pt's Clothing*
5. Responsibility for patient:	
5.1 Give lifesaving emergency assistance, as needed.	*Manage A-B-C*
5.2 Secure pertinent information from appropriate bystanders.	*Bystander info*
5.3 If patient has a wound, cover it with clean dressings using gauze or elastic bandage (not adhesive tape).	*Bandage without tape*
5.4 Cover stretcher, including pillow, with an open blanket, then wrap the patient in the blanket to limit spread of contamination.	*Contain contamination*
6. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*	*Transport*
7. Document all incident information by completing the *RI EMS Ambulance Run Report.*	*Document*

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Seizures/Postictal State

For pediatric patients <5 feet tall (<35 kg/75 lbs.), follow *Seizures (Pediatric*) protocol.

RECOGNITION

Seizure: A sudden episode of unresponsiveness, characterized by mild to severe involuntary contractions of skeletal muscles.
Postictal: Third phase of a convulsive seizure. Convulsions stop, and the patient may be drowsy or remain unconscious for hours.

TREATMENT

1. Unless unable to rule out trauma, stabilize neck and spine with cervical collar and spineboard as soon as possible.

2. Perform initial assessment while protecting the airway with an appropriate airway.

3. Protect patient from sustaining any injuries.

4. Position on left side (unless contraindicated), and remove secretions if needed.

5. Administer **OXYGEN** with the highest concentration device tolerated; assist ventilation's as necessary.

6. If signs of ventilatory problems arise, follow the *Airway Management and Respiratory Support protocol.*

7. Obtain history from family and/or bystanders including medications. Determine, if possible, any previous history of seizure activity.

8. Assess the patient; determine the level of consciousness with the **AVPU** method or **Glascow Coma Scale**.

9. If electronic glucose meter is available, determine blood glucose (bG) concentration

10. If the bG concentration is <60 mg/dl or if the patient has signs and/or symptoms of hypoglycemia regardless of the availability of bG measurement, and the patient's mental status is "alert" **A** or becomes alert to "verbal" **V** stimuli, then administer an **ORAL GLUCOSE** product as indicated below:

    10.1 Administer **ORAL GLUCOSE** with approximately 15 grams of **GLUCOSE** (e.g. Glucola, Glutose 15™, InstaGlucose).

    10.2 **Do not** administer **ORAL GLUCOSE** product to a patient who is vomiting, nauseated, or not fully awake.

10.3 Repeat administration of **ORAL GLUCOSE** product, approximately 15 grams, if evidence of hypoglycemia persists beyond 15 minutes after the first dose.

10.4 **Contact Medical Control** for authorization to administer **GLUCAGON 1 mg** (1 unit) IM or SQ, if available.

▼ ***ALS PERSONNEL***

11. If seizure activity persists, or if the patient has impaired consciousness:

11.1 Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

11.2 Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO rate (~20 ml per hour).

11.2.1 If unable to start an IV in 2 attempts or 5 minutes transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

11.3 Draw a sample of the patient's blood for blood glucose (bG) analysis. This may be done while starting the IV.

11.4 Patient with bG <60 mg/dL as determined by electronic glucose meter, or unknown:

11.4.1 Administer **THIAMINE HCI** 100 mg IV push or IM.

11.4.2 Administer **DEXTROSE ($D_{50}W$)** 25 gm (50 mL) IV over 2 minutes. Repeat once in 5 minutes if there is no improvement in mental status.

11.4.2.1 Do not administer **DEXTROSE** to a pregnant patient. Administer **GLUCAGON** 1 mg (1 unit) IM or SQ, in place of **DEXTROSE.**

11.4.2.2 If unable to establish an IV, administer **GLUCAGON** 1 mg (1 unit) IM or SQ.

11.5 Administer **NALOXONE HCL** (Narcan®) 2.0 mg IV push (or IM, SQ). Repeat at 3-minute intervals until narcotic overdose is reversed or to a maximum total dose of 10 mg.

11.5.1 Alternative method of administration: administer **NAXOLONE HCL** (Narcan®) 0.4 mg IV push (or IM, SQ). Repeat at 1minute intervals until narcotic overdose is reversed or to a maximum total dose of 10 mg.

11.5.2 Alternative method of administration: If endotracheal tube is in place, administer **NAXOLONE HCI** (Narcan®) 2.0 mg diluted in 10 ml **NORMAL SALINE,** by endotrachael tube.

11.6 **EMT-Ps:** If seizures continue, administer **MIDAZOLAM** (Versed®) as indicated below. **EMT-Cs** must **contact Medical Control** for authorization to administer **MIDAZOLAM** (Versed®).

11.6.1 Administer **MIDAZOLAM** (Versed®), 2.5-5.0 mg IV over 1-2 minutes or IM (or 2.5-5.0 mg by ETT diluted in 10 ml **NORMAL SALINE**). Repeat at 5-15 minutes, x2, as needed or to a maximum total dose of 10 mg.

▼ **ALL EMT's**

12. Contact Medical Control.

13. Transport patient without delay to a *Hospital Emergency Facility.*

14. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Seizures (Pediatric)

RECOGNITION

Seizure: A sudden episode of unresponsiveness, characterized by mild to severe involuntary contractions of skeletal muscles.
Postictal: Third phase of a convulsive seizure. Convulsions stop, and the patient may be drowsy or remain unconscious for hours.

TREATMENT

1. Unless able to rule out trauma, stabilize neck and spine with cervical collar and spineboard as soon as possible.

2. Perform initial assessment while protecting the airway with an appropriate maneuver.

3. Protect patient form sustaining any injuries.

4. Position on left side (unless contraindicated), and remove secretions if needed.

5. Administer **OXYGEN** with the highest-concentration device tolerated; assist ventilations as necessary.

6. If signs of ventilatory problems arise, follow the *Airway Management and Respiratory Support protocol.*

7. Obtain history from family and/or bystanders including medications. Determine, if possible, any previous history of seizure activity.

8. Assess the patient; determine the level of consciousness with the **AVPU** method or **Pediatric Glascow Coma Scale**.

9. If rectal temperature exceeds 38.9ºC (102º F) rectal or equivalent, administer **ACETAMINOPHEN** (Tylenol®) suppository per rectum, 15 mg/kg (7mg/lb).

10. If electronic Glucose meter is available, determine blood Glucose (bG) Concentration.

11. If the bG concentration is <60 mg. dl or if the patient has signs and/or symptoms of hypoglycemia, and the patient's mental status is "alert" **A** or becomes alert to "verbal" **V** stimuli, then administer an **ORAL GLUCOSE** product as indicated:

    11.1 Administer **ORAL GLUCOSE** with approximately 15 grams of **GLUCOSE** (e.g. Glucola, Glutose 15™, InstaGlucose).

11.2 For pediatric patients younger than 1 year of age (<10 kg), **contact Medical Control.** With authorization from Medical Control, EMTs may administer an **ORAL GLUCOSE** product as directed by Medical Control.

11.3 **Do not** administer an **ORAL GLUCOSE** product to a patient who is vomiting, nauseated, or not fully awake.

11.4 Repeat administration **ORAL GLUCOSE** product, approximately 15 grams, if evidence of hypoglycemia persists beyond 15 minutes after first dose.

11.5 **Contact Medical Control** for authorization to administer **GLUCAGON 1 mg** (1 unit) IM or SQ, if available.

11.5.1 Pediatric patients <5 feet tall (<35 kg/75lbs) administer **GLUCAGON** 0.1 mg/kg, to a maximum of **1 mg** (1 unit), IM or SQ.

▼ ***ALS PERSONNEL***

12. If seizure activity persists, or if the patient has impaired consciousness:

12.1 Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

12.2 Start an IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution:

12.2.1 Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO rate (~20 mL/hour); or administer boluses of 20 mL/kg over 5-10 minutes for patients in shock.

12.2.2 If unable to establish IV in 2 attempts or 5 minutes transport the patient to a *HOSPITAL EMERGENCY FACILITY***.** Any further attempt at IV placement must occur en route.

12.3 Draw a sample of the patient's blood for blood glucose (bG) analysis. This may be done while starting the IV.

13. ***EMT-Ps:*** If patient has demonstrated persistent seizure activity for more than 15 minutes; or has airway compromise with cyanosis or bradycardia, administer **DIAZEPAM Gel** (Diastat®) or **MIDAZOLAM** (Versed®) as indicated below. ***EMT-Cs*** must **contact Medical Control** for authorization to administer **DIAZEPAM Gel** (Diastat®) or **MIDAZOLAM** (Versed®)

    13.1 Administer **MIDAZOLAM** (Versed®), as indicated on a pediatric dosing device: 0.05-0.1 mg/kg IV over 1-2 minutes or IM, (or 0.05-0.1 mg/kg by ETT diluted in 5 ml **NORMAL SALINE)** to a maximum of 2.5 mg, or

    13.2 Administer **DIAZEPAM GEL** (Diastat®), if available, 0.5 mg/kg per rectum to a maximum of 20 mg.

    13.3 Repeat administration of **MIDAZOLAM** (Versed®) 0.05-0.1 mg once in 5 minutes to a maximum of 2.5 mg.

14. If seizure activity persists; or if patient has bG <60 mg/dL or unknown:

    14.1 Administer **DEXTROSE.** Use **$D_{25}W$** (may be prepared by diluting **$D_{50}W$** 1:1 with sterile water or NS), and administer as indicated on Broselow® Tape, at 2 mL/kg (0.5 gm/kg) over 5 minutes.

        14.1.1 If unable to establish an IV, administer **GLUCAGON** 0.1 mg/kg, to a maximum dose of 1 mg (1 unit) IM or SQ.

▼ ***EMT-Ps ONLY:***

15. If seizures continue, **contact Medical Control** for authorization to administer **PHENOBARBITAL**, as indicated on a pediatric dosing device:

    15.1 Administer **PHENOBARBITAL** 20 mg/kg IV, at rate <50 mg/min.

        15.1.1 May administer additional doses of 5 mg/kg every 20 minutes, as necessary, to control seizure activity.

    15.2 Be prepared to provide appropriate airway management and ventilatory support.

▼ ***ALL EMTs***

16. **Contact Medical Control**

17. Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY*.

18. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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SPECIALIZED PATIENT CARE

RECOGNITION

1. A patient who needs specialized healthcare should have an Emergency Care Plan developed in conjunction with their physician and filed with the Department of Health. The patient should make the plan available to responding EMS providers through various means and the EMS provider should refer to the treatment described in the Emergency Care Plan.

2. If an Emergency Care Plan is not provided, then a patient who needs specialized care may be recognized through the presence of equipment, medications or other circumstances not familiar to the EMT through training or protocol.

TREATMENT – EMERGENCY CARE PLAN PRESENT

QUICK REFERENCE

EMERGENCY CARE PLAN?

-IDENTIFICATION
-DESCRIPTION
-INSTRUCTION
-REFERENCE
-FILED WITH DOH

1. An Emergency Care Plan should be sought in patients with observed need for specialized care. The Plan may be referred to in bracelet, wallet card or other EMS notification. It must include:
    1. Patient identification, including photograph
    2. A brief description of the patient's specialized care needs
    3. Instructions for care in anticipated emergency situations
    4. Reference numbers for further information
    5. Filing and effective date from the Department of Health

FOLLOW PLAN

2. The EMS provider should follow the Emergency Care Plan. While reviewing the Plan, CONTACT MEDICAL CONTROL and other references noted in the Plan. MEDICAL CONTROL should be requested to provide guidance and an explanation of equipment and medications referenced in the Emergency Care Plan. If available, attempt to contact or locate the person most knowledgeable about the patient's specialized health care needs.

MED CONTROL

TRANSPORT

3. Transport the patient without delay to a HOSPITAL EMERGENCY FACILITY, maintaining contact with MEDICAL CONTROL. In transporting the patient, keep the Emergency Care Plan with the patient. If available, transport should include the person most knowledgeable about the patient's specialized health care needs.

DOCUMENT

4. Document all incident information by completing the RI EMS Ambulance Run Report.

TREATMENT – NO EMERGENCY CARE PLAN

1. CONTACT MEDICAL CONTROL. Attempt to contact or locate the person most knowledgeable about the patient's specialized healthcare needs in order to obtain advice during the care and transport process.

NO EMERGENCY CARE PLAN?

2. If the patient is attached to portable special medical equipment that appears to be working properly, transport it with the patient.

MED CONTROL

EQUIPMENT OK? TRANSPORT WITH PATIENT

3. If the patient is attached to specialized medical equipment that is either too large to transport or does not appear to be working properly, disconnect it as safely as possible from the patient and provide alternative support as indicated.

EQUIPMENT NOT OK? DISCONNECT AND PROVIDE SUPPORT

4. If a patient has a specialized health care need not related to equipment, follow the instructions of the person most knowledgeable with the advice of MEDICAL CONTROL in providing treatment and transport.

5. Transport the patient without delay to a Hospital Emergency Facility, maintaining contact with Medical Control. If available, transport should include the person most knowledgeable about the patient's specialized health care needs.

MED CONTROL

6. Document all incident information by completing the RI EMS Ambulance Run Report.

DOCUMENT

STROKE (CVA)

RECOGNITION

Unilateral paralysis, unilateral numbness, language disturbance, monocular blindness, vertigo or ataxia without impaired consciousness.

Note: If a patient is suspected of having a stroke, DO NOT ADMINISTER ASPIRIN; no further medications should be administered without contacting MEDICAL CONTROL.

TREATMENT

1. Perform initial assessment while protecting the airway.
2. If the patient has any impaired consciousness, follow the *Impaired Consciousness Protocol.*
3. Obtain vital signs and frequently reassess patient's condition.
4. Obtain history from patient, family and/or bystanders to include:
   - 4.1 When was the patient last known to be without symptoms?
   - *4.2* Did the patient have a seizure or head injury at the time of onset?
   - *4.3* Did the patient complain of a headache, neck pain or neck stiffness prior to onset?
   - *4.4* Did the patient undergo any recent surgery?
   - *4.5* Does the patient take any anticoagulant medications?
5. Perform the Prehospital Stroke Scale to determine treatment priority.
6. Transport the patient without delay to a HOSPITAL EMERGENCY FACILITY and CONTACT MEDICAL CONTROL. Every effort should be made to notify the receiving facility as soon as possible.
7. Administer **OXYGEN** with the highest concentration device tolerated, assist ventilation's as necessary.

Quick Reference

Initial Survey

LOC

Vital signs
Reassessment

Obtain History

? Onset
? Seizures/Trauma
? Headache
? Neck Pain or Stiffness
? Surgery
? Anticoagulants

Prehospital Stroke Scale

Transport
Med Control

High Concentration O2

▼ **ALS PERSONEL**	
8. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm and any rhythm changes. Atach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*	Monitor/ECG
9. Start an IV access device or an IV of **NORMAL SALINE** solution only. *Attempts should occur during transport.*	
9.1 Adult patients: start an IV of **NORMAL SALINE** solution at KVO (20-30 ml/hr).	IV Normal Saline
 9.2 Pediatric Patients < 5 feet tall (<35kg/75 lbs.): Start an IV of **NORMAL SALINE** solution at KVO (10-20 ml/hour).	
10. Draw a sample of the patient's blood for blood glucose (bG) analysis. This may be done while starting the IV.	Draw Blood
11. If electronic glucose is available, determine blood glucose concentration. Patients with bG < 60 mg/dl, as determined by electronic glucose meter, refer to the *Impaired Consciousness Protocol.*	Check Blood Glucose
▼ **ALL EMTS**	Document
12. Document all incident information by completing the *RI EMS Ambulance Run Report.*	

Shock

RECOGNITION

Shock is a state of decreased tissue perfusion that can result from a large variety of causes. Consider the diagnosis of shock for any patient with:

1. Altered mental status
2. Impaired consciousness; restlessness; coma
3. Pale, cool, clammy (diaphoretic) skin
4. Abnormal vital signs, as shown in the table below:

ABNORMAL VITAL SIGNS

Age	Respiratory Rate		Heart Rate		Systolic BP	
	Too Slow	*Too Fast*	*Too Slow*	*Too Fast*	*Too Low*	NOTE:
Newborn (birth-1month)	<30	>80	<100	>200	<40	Absent
Infant (1 month – 1 year)	<20	>70	<80	>180	<60	Radial Pulse
Pre-School (1-6 years)	<16	>40	<70	>160	<75	suggests
School Age (6-12 years)	<12	>30	<60	>140	<85	Hypotension
Adolescent (12-16 years)	<10	>24	<60	>120	<90	
Adult (≥ 16 years)	<10	>24	<60	>120	<90	

5. Significant hypotension, as indicated for **adult** patients in the table below:

If unable to palpate pulse at:	*Systolic BP is probably:*
radial artery	<90 mm Hg
brachial artery	<80 mm Hg
femoral artery	<70 mm Hg
carotid artery	<60 mm Hg

TREATMENT

1 Perform initial assessment while protecting the airway with appropriate maneuver.

2 Control external bleeding by direct pressure or pressure points.

3 Administer **OXYGEN** with the highest-concentration device tolerated; assist ventilations necessary.

4 If respiratory or ventilatory problems arise, follow the *Airway Management and Respiratory Support* protocol.

5 Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

6 Attempt to determine cause of shock:

6.1 If shock is secondary to trauma: Transport as soon as possible; contact Medical Control; and follow the *Trauma* protocol. Elevate patient's legs, unless contraindicated.

6.2 If shock is secondary to anaphylaxis (eg: bee sting allergy), follow the *Anaphylaxis* protocol, and then continue as below. Elevate patient's legs, unless contraindicated.

7 Consider use of pneumatic anti-shock garment following the *PASG* protocol.

▼ ***ALS PERSONNEL***

8 Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.

9 Start a large bore IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution:

9.1 For all forms of shock **except cardiogenic:**

9.1.1 Adult patients: Administer IV "wide open" until there is an improvement in systolic BP to a value above 90 mm Hg; or until clinical signs of CHF develop.

9.1.1.1 If transport time will be longer than 15 minutes, start a second IV at a different site.

9.1.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): Administer fluid boluses of 20 mL/kg/dose by rapid IV push. Reassess patient after each dose, and repeat boluses as necessary to achieve systolic BP above age-related hypotensive value (refer to table).

9.1.2.1 For pediatric patients with evident or suspected intra-abdominal injury, attempts to start IVs should be made above the diaphragm.

9.1.2.2 If transport time will be longer than 15 minutes, start a second IV.

9.1.3 If unable to establish an IV in 2 attempts or 5 minutes transport the patient to a *HOSPITAL EMERGENCY FACILITY.* any further attempt at IV placement must occur enroute.

▼ ***ALS PERSONNEL (CONT'D.)***

9.2 For **cardiogenic shock**:

9.2.1 Adult patients: Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (20-30 mL/hour).

9.2.1.1 If transport time will be longer than 15 minutes, start a second IV at a different site.

9.2.2 Pediatric patients <5 feet tall(<35 kg/75 lbs.): Administer **NORMAL SALINE** or **LACTATED RINGER'S** solution at KVO (10-20 ml/ hour).

9.2.2.1 If transport time will be longer than 15 minutes, start a second IV at a different site.

9.2.3 If unable to establish an IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur enroute.

9.2.4 Consider a fluid challenge of **NORMAL SALINE** or **LACTATED RINGER'S** solution IV:

9.2.4.1 Administer 500mL "wide open" until there is an improvement in systolic BP to a value above 90 mm Hg; or until clinical signs of CHF develop.

9.2.4.2 Pediatric patients <5 feet tall (<35 kg/75lbs): Administer fluid boluses of 20 mL/kg/dose by rapid IV push. Reassess patient after each dose, and repeat boluses as necessary to achieve systolic BP above age-related hypotensive value (refer to table).

9.3 ***EMT-Ps only*** (with Infusion Pump training): May administer **DOPAMINE HCL** by IV infusion as indicated below. ***EMT-Cs*** (with Infusion Pump training) may administer **DOPAMINE HCL** by IV infusion pump with authorization from Medical Control. Due to the high risk of side effects due to incorrect dosing, **DOPAMINE HCL** may only be administered by Infusion Pump as indicated below:

▼ ***ALS PERSONNEL (CONT'D.)***

9.3.1 Adult patients: Administer **DOPAMINE HCL** (400 mg in 250 mL NS) by IV Infusion Pump at 5-20 mcg/kg/min. Titrate the rate to achieve a systolic blood pressure >90 mm Hg.

9.3.2 Pediatric patients <5 feet tall (<35 kg/75 lbs.): Administer **DOPAMINE HCL** as indicated on a pediatric dosing device at 2-20 mcg/kg/min by IV Infusion Pump, and then titrate the rate to achieve a systolic blood pressure above the age –related value (refer to table).

10 If patient is wearing a Medic Alert® or equivalent identification stating "adrenal insufficiency", administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®) as indicated below:

10.1 Adult patients: Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®) 100mg IV.

10.2 Pediatric patients < 5 feet tall (<35 kg/75 lbs): Administer **HYDROCORTISONE SODIUM SUCCINATE** (Solu-Cortef®), 1-2 mg/kg IV.

▼ ***ALL EMTs***

11 Contact Medical Control.

12 Transport the patient without delay to a *HOSPITAL EMERGENCY FACILITY.*

13 Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Trauma

DEFINITIONS

Level I Trauma Center: A hospital emergency facility verified by the American College of Surgeons as a Level I Trauma Center for adult and/ or pediatric patients. For a list of ACS-verified Level I Centers in or near Rhode Island, see Appendix (pp. 39-7).

PRINCIPLES

1. Rapid initial assessment is essential. Access to the patient for the initial assessment and initial treatment should take precedence over complete extrication.

2. Transport should always occur as soon as possible after immobilization (ideally, in less than 10 minutes at the scene). Further treatment should be given en route.

TREATMENT

1 Stabilize the patient's neck and spine and immobilize with cervical collar and spineboard as soon as possible.

2 Follow the *Airway Management and Respiratory Support* protocol to manage the airway and to ensure oxygenation and ventilation.

- 2.1 Use the jaw-thrust without head-tilt, taking care to avoid movement of the cervical spine.
- 2.2 Clear upper airway manually or by suction, as necessary.
- 2.3 Administer **OXYGEN** with the highest-concentration device tolerated.
- 2.4 If respirations are absent or ineffective, ventilate or assist, as needed.
- 2.5 Control bleeding by direct pressure. Do not remove penetrating objects unless authorized by Medical Control.

3 If the patient is unconscious and pulseless, determine if the *Biological Death or Comfort One* protocol applies. If criteria for *Biological Death* or *Comfort One* are not met, start basic life support and follow *Cardiac Arrest* protocol.

4 Assess patient, obtain initial vital signs, and frequently reassess patient's condition.

5 Determine the patient's initial trauma score. Refer to *Revised Trauma Score (Adult) and Trauma Score (Pediatric)* tables.

- 5.1 Transport without delay and contact Medical Control as soon as possible.
- 5.2 Adult patients: If the trauma score <11, or the patient's "situation of injury" includes any of the trauma factors identified on the *RI EMS Ambulance Run Report*, and you are within 30 minutes ground transport time to an Adult Level I Trauma Center, transport to that trauma center's emergency

department, unless an airway emergency exists. If an airway emergency exists, follow the *Airway Management and Respiratory Support* protocol.

5.2.1 If the scene time and/or ground transport time will be more than 30 minutes, and a landing site is available, consider transport by air ambulance from the scene to an Adult Level I Trauma Center. Follow the *Air Ambulance* protocol.

5.2.2 If you are beyond 30 minutes ground transport time to an Adult Level I Trauma Center, transport to the nearest *HOSPITAL EMERGENCY FACILITY.*

5.3 If a pediatric patient's trauma score ≤ 10, transport without delay; contact Medical Control as soon as possible.

5.4 Pediatric patients <5 feet tall (<35 kg/75 lbs): If the pediatric trauma score is <9 or the patient's "situation of injury" includes any of the trauma factors identified on the *RI EMS Ambulance Run Report*, and you are within 30 minutes ground transport time to a Pediatric Level I Trauma Center, transport to that trauma center's emergency department, unless an airway emergency exists. If an airway emergency exists, follow the *Airway Management and Respiratory Support* protocol.

5.4.1 If the scene time and/or ground transport time will be more than 30 minutes, and a landing site is available, consider transport by air ambulance from the scene to a Pediatric Level I Trauma Center. Follow the *Air Ambulance* protocol.

5.4.2 If you are beyond 30 minutes ground transport time to a Pediatric Level I Trauma Center, transport to the nearest *HOSPITAL EMERGENCY FACILITY*.

6 Transport the patient without delay to an appropriate *HOSPITAL EMERGENCY FACILITY* and contact Medical Control en route.

7 If the patient is pregnant and no contraindications exist, elevate the patient's right side (or tilt spineboard to the left) during transport.

8 If signs of shock are present, priority should be given to early contact with Medical Control and to rapid transport to the appropriate facility. Follow the *Shock* protocol en route.

8.1 Apply and inflate the Pneumatic Anti-Shock Garment, following the *PASG* protocol.

▼ ***ALS PERSONNEL***

8.2 Start at least one large-bore IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution:

8.2.1 Adult patients: Administer IV "wide open" until there is an improvement in systolic BP to a value >90 mm Hg or until clinical signs of CHF develop.

8.2.1.1 If transport time will be will be longer than 15 minutes, start a second IV at a different site.

8.2.2 Pediatric patients <5 feet tall (<35 kg/75lbs): Administer fluid boluses of 20 mL/kg/dose by rapid IV push. Reassess patient after each dose, and repeat boluses, as necessary, to achieve systolic BP above age-related hypotensive value (refer to table).

8.2.2.1 For pediatric patients with evident or suspected intra-abdominal injury, attempts to start IVs should be made above the diaphragm.

8.2.2.2 If transport time will be longer than 15 minutes, start a second IV at a different site.

9 Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*

▼ ***ALL EMTS***

10 Continue further therapy as indicated for specific injuries.

11 Document all incident information by completing the *RI EMS Ambulance Run Report.*

FURTHER TREATMENT OF CHEST TRAUMA

12 Administer **OXYGEN** with the highest-concentration device tolerated; assist ventilations as necessary.

13 Flail chest (paradoxical movement of a portion of the chest wall).

13.1 Position patient with injured side down, unless contraindicated.

13.2 Provide manual stabilization of flail segment or splint, as needed.

14 Open pneumothorax (sucking chest wound)

14.1 Close on three sides by any appropriate means available (eg: gauze pad with Vaseline®; plastic wrap; defibrillator pad; etc.)

14.2 Monitor the patient closely for evidence of developing tension pneumothorax.

15 Tension pneumothorax (increasing ventilatory impairment; distended neck veins; absent breath sounds with hyper-resonance on one side of the chest; tracheal deviation away from the side without breath sounds)

15.1 If present, after closure of a sucking chest wound, remove the dressing to convert it to a simple open pneumothorax again.

15.2 ***EMT-Ps only*** may attempt pleural decompression.

FURTHER TREATMENT OF ABDOMINAL TRAUMA

16. Closed (blunt)

16.1. Place patient supine with legs elevated, with flexion at hips and knees, unless contraindicated.

17. Open (penetrating)

17.1. Place patient supine with legs elevated, with flexion at hips and knees, unless contraindicated

17.2. Cover wound with sterile dressing and stabilize any impaled object.

17.2.1. If evisceration is present, moisten sterile dressing with sterile saline.

FURTHER TREAMENT OF HEAD/SPINAL INJURIES

18. Establish airway, and maintain with appropriate maneuver following the *Airway Management and Respiratory Support* protocol.

19. Stabilize neck and spine with cervical collar and spineboard as soon as possible.

20. Control scalp bleeding by direct pressure unless obvious fracture of skull is present.

21. Assess the patient's neurologic status using the **AVPU** method or **Glasgow Coma Scale,** and repeat en route.

22. For an unconscious patient, ventilate with high-concentration **OXYGEN** following the *Airway Management and Respiratory Support* protocol. Hyperventilate only if there are signs of impending brain herniation.

▼ ***ALS PERSONNEL***

23. Maintain IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution as indicated below:

23.1. Adult patients: In the absence of shock, reduce **NORMAL SALINE** or **LACTATED RINGER'S** IV to KVO rate (20-30mL/hour). If there is evidence of shock, administer IV fluid "wide open."

▼ ***ALS PERSONNEL (CONT'D.)***

23.2. Pediatric patients <5 feet tall (<35 kg/75 lbs): In the absence of shock, reduce **NORMAL SALINE** or **LACTATED RINGER'S** solution IV to KVO rate (10-20 mL/hour). If there is evidence of shock, administer boluses of 20 ml/kg/dose by rapid IV push.

FURTHER TREATMENT OF EXTREMITY TRAUMA (Amputation, Fracture)

24. Document any unusual circumstance involving the injury (eg: Gross contamination; movement from the original position prior to your arrival) by completing the *RI EMS Ambulance Run Report.*

25. Cover open (compound) fractures or amputation stumps with sterile dressings, then immobilize the limb. Elevation of an immobilized extremity is often helpful in controlling bleeding.

26. Immobilize an apparent fracture, dislocation, or amputation in the position found with appropriate splinting devices, unless:

    26.1. There are no pulses distal to injury site. Contact Medical Control if distal pulses are absent. Medical Control may authorize movement of the extremity.

    26.2. The extremity is angulated and interferes with safe transport.

    26.3. There is an apparent fracture of the shaft of the femur.

        26.3.1. Adult patients: Apply a traction splint.

        26.3.2. Pediatric patients <5 feet tall (<35 kg/75 lbs): Apply a pediatric traction splint, if available.

27. Place amputated parts in a sterile dressing moistened with **STERILE SALINE**. Place the dressing that contains the amputated part(s) in a towel or a plastic bag, then on an ice pack, if available. Do not place the amputated parts directly on ice or in any liquids.

▼ ***ALS PERSONNEL***

28. Maintain IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution as indicated below:

    28.1. Start IV(s) in uninvolved extremities or proximal to fracture sites (in cases of multiple fractures).

28.1.1. Adult patients: In the absence of shock, reduce **NORMAL SALINE** or **LACTATED RINGER'S** solution IV to KVO rate (20-3 ml/hour) If there is evidence of shock, administer IV fluid "wide open."

28.2. Pediatric patients <5 feet tall (<35 kg/75 lbs): In the absence of shock, reduce **NORMAL SALINE** or **LACTATED RINGER'S** solution IV to KVO rate (10-20 mL/hour). If there is evidence of shock, administer boluses of 20mL/kg/dose by rapid IV push.

FURTHER TREATMENT OF EYE TRAUMA

29. Check for pain, loss of vision, and eye muscle function (side-to-side and up-and-down motions of the eyes).

30. Manage eye trauma by:

30.1. Irrigation of chemical or small foreign body injuries for at least 15 minutes, using at least 500 mL of **LACTATED RINGER'S** or **NORMAL SALINE**.

30.1.1. ***EMT-Ps only*****:** For chemical or small foreign body injuries only, may instill **TETRACAINE HCL** 0.5% solution, 1-2 drops into affected eye. May repeat every 5-10 minutes to a maximum of 3 doses.

30.2. Only in cases where irrigation of liquid injuries (chemical or hot liquids) is required, trained personnel may use a soft contact lens-type irrigation system (Morgan Lens® or equivalent) using at least 500ml of **LACTATED RINGER'S** or **NORMAL SALINE** solution.

30.3. Protecting traumatized eye by applying an appropriate dressing and protective eye shield. Do not apply pressure or dressings directly to the eyeball (globe).

30.4. Covering both eyes to limit sympathetic movement of the injured eye.

31. Document the type of injury (e.g., Contusion, laceration, chemical, foreign body) by completing the *RI EMS Ambulance Run Report*.

APPENDIX
Level I Trauma Centers
Rhode Island and Contiguous
Massachusetts and Connecticut

Providence, RI	
Rhode Island Hospital	Adult & Pediatric
Boston, MA	
Beth Israel Deaconess Medical Center	Adult
Boston Medical Center	Adult
Brigham & Women's Hospital	Adult
Children's Hospital of Boston	Pediatric
Massachusetts General Hospital	Adult
Massachusetts General Hospital for Children	Pediatric
The Floating Hospital for Children	Pediatric
New Haven, CT	
Yale New Haven Medical Center	Adult & Pediatric
Hartford, CT	
Hartford Hospital	Adult

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Medications
(Listed by Generic Names)

Including Optional Medications

Generic Name (Familiar Chemical Name)		Common Trade Names
A	Acetaminophen (APAP)	Tylenol®
	Activated charcoal	Actidose®, Charcodote®
	Adenosine	Adenocard®
	Albuterol	Ventolin®, Proventil®
	Amiodarone	Cordarone®
	Amyl Nitrate	(amyl nitrate)
	Antacid	Mylanta®
	Aspirin (ASA)	(aspirin)
	Atropine (atropine sulfate)	(atropine)
B	British Anti-Lewisite	BAL
C	Calcium chloride	Calcium Chloride®
	Calcium Gluconate	Calgonate
D	Dextrose 25% (D25W, D25)	(25% dextrose)
	Dextrose 50% (D50W, D50)	(50% dextrose)
	Diazepam rectal gel preparation	Diastat®
	Diltiazem	Cardizem®
	Diphenhydramine (Diphenhydramine HCL) *[injectable]*	Benadryl®
	Diphenhydramine (Diphenhydramine HCL) *[oral]*	Benadryl®
	Dopamine (dopamine HCL)	Intropin®
E	Epinephrine 1:10,000 (epinephrine HCL)	Adrenalin® 1:10,000
	Epinephrine 1:1000 (epinephrine HCL)	Adrenalin® 1:1000
F	Furosemide	Lasix®
G	Glucagon	(glucagon)
	Glucose, oral	Glucola®, Glutose®, InstaGlucose®
H	Hydrocortisone Sodium Succinate	Solu -Cortef®
I	Ipecac (syrup of ipecac)	(syrup of ipecac)
	Lidocaine (lidocaine HCL)	Xylocaine®
M	Magnesium Sulfate	(magnesium sulfate)
	Midazolam	Versed®
	Morphine (morphine sulfate, MSO4)	(morphine)
N	Naloxone (naloxone HCL)	Narcan®
	Nitroglycerine	Nitrobid®
	Nitrospray	Nitrobid®
	Oxygen (02)	(oxygen)
P	Phenobarbital (Phenobarbital sodium)	(phenobarbital)
	Pralidoxime Chloride	2 Pam, Protopam
S	Sodium Bicarbonate (NaHC03)	(sodium bicarbonate)
	Sodium Nitrate	(sodium nitrate)
	Sodium Thiosulfate	sodium thiosulfate)
T	Terbutaline (terbutaline sulfate)	Brethine®, Bricanyl®
	Tetracaine HCL	Pontocaine®
	Thiamine (thiamine HCL)	(thiamine)
V	Verapamil (verapamil HCL)	Calan®, Isoptin®

Pediatric Drug Reference

	Generic Name	Protocol	Initial Dose Pediatric	Units	5 Kg	10 Kg	15 Kg	20 Kg	25 Kg	30 Kg	35 Kg
					~3 mos	~1 yr	2-3 yrs	4-6 yrs	7-9 yrs	10-11 yrs	12-14 yrs
A	acetaminophen	Seizures (Pedi)	15 mg/kg by suppository	#mg	75	150	225	300	375	450	525
	activated charcoal	Poisoning and OD	1 gm/Kg PO	#grams	5	10	15	20	25	6.0	7.0
	adenosine	SVT (Pedi), VT	0.2 mg/kg IV rapid push	#mg	1.0	2.0	3.0	4.0	5.0	3	3.5
	albuterol	Asthma, CHF	1.20-2.5 mg by nebulizer	#mg	1.25	2.5	2.5	2.5	2.5	2.5	2.5
	Amiodarone	SVT (Unstable)	5mg/kg over 20-60 MINUTES IV	#mg	25	50	75	100	125	150	175
	amyl nitrate	Major Incident	Not recommended	#mg							
	antacid (Mylanta®)	Chest pain in a Susp Cardiac Pt.	30mL PO	#ml					30	30	30
	atropine	Bradycardia (Pedi)	0.02 mg/kg IV push	#mg	0.1	0.2	0.3	0.4	0.5	0.6	0.7
	atropine	Major Incident		#mg	0.5	0.5	0.5	0.5	0.5	0.5	
B	BAL	Major Incident	3-5mg/kg IM only	#mg	20	40	60	80	100	120	
D	dextrose 25% (D25W)	Imp Consciousness, Sz (Pedi)	2mL/kg (0.5 mg/kg) IV	#ml	10	20	30	40	50	60	70
	Diastat	Seizures (Pedi)	0.5 mg/kg PR (round down)	#mg	2.5	5	7.5	10	12.5	15	17.5
	diphenhydramine	Anaphylaxis	1 mg/kg IV or IM or PO	#mg	5	10	15	20	25	30	35
	dopamine	Anaphylaxis, Shock	2-20 mcg/kg/min	mcg/min	10-100	20-200	30-300	40-400	50-500	60-600	70-700
E	epinephrine, 1:10,000	Asystole, PEA, VF/VT, Brady (Pedi)	0.01 mg/kg IV push	#mg	0.05	0.1	0.15	0.2	0.25	0.3	0.35
	epinephrine, 1:10,000	Anaphylaxis, Asthma	0.005-0.020 mg/kg IV	#mg	.025-0.1	0.05-0.2	**0.075-0.3**	0.1-0.4	**0.125-0.5**	0.15-0.6	**0.175-0.7**
	epinephrine, 1:1,000	Anaphylaxis, Asthma	0.01 mg/kg SQ, max=0.3 mg	#mg	0.05	0.1	0.15	0.2	0.25	0.3	0.3
	epinephrine, 1:1,000	Airway Mgmt, Burns, Dyspnea	5.0 mg nebulized	#mg	5.0	5.0	5.0	5.0	5.0	5.0	5.0
F	furosemide	CHF	1 mg/kg IV	#mg	5	10	15	20	20	20	20
G	glucagon	Imp Consciousness, Sz (Pedi)	0.1 mg/kg IM, SQ, max=1 mg	#mg	0.5	1	1	1	1	1	1
H	hydrocortisone	Asthma, Shock,	1-2 mg/kg	#mg	5-10	10-20	15-30	20-40	25-50	30-60	35-70
I	ipecac	Poisoning and OD	15 or 30 mL PO	#ml	15	15	15	15	30	30	30
L	lidocaine	Chest pain in a Susp Cardiac Pt.	1-1.5 mg/kg IV push	#mg	5-7.5	10-15	15-22.5	20-30	23-37.5	30-45	35-52.5
	lidocaine	PVCs, VF/VT, VT Stable/Unstable	1-1.5 mg/kg IV push	#mg	5-7.5	10-15	15-22.5	20-30	23-37.5	30-45	35-52.5
M	magnesium sulfate	VF/VT: Torsades de Pointe	25 mg/kgIV to max 2gm	#grams	125 mg	250 mg	375 mg	500 mg	625 mg	750 mg	875 mg
	midazolam	Pain Mgmt and Sedation, Sz	0.05-0.1 mg/kg IV* or IM	#mg	0.25-0.50	0.50-1.0	0.75-1.5	1.0-2.0	1.25-2.5	1.5-3.0	1.75-3.5
	morphine	Burns, Chest Pain, CHF, Pain	0.05-0.1 mg/kg IV	#mg	.25	1	1.5	2	2.5	3	3.5
N	naloxone	Imp Consciousness	0.1 mg/kg IV push, IM/SQ	#mg	0.5	1	1.5	2	2.5	3	3.5
	naloxone	Pain Mgmt and Sedation	0.01 mg/kg IV push	#mg	0.05	0.1	0.15	0.2	0.25	0.3	0.35
	nitroglycerin	Chest Pain, CHF	Dose per Med Control	#mg	Dose per Med Control						
P	phenobarbital	Seizures (Pedi)	20 mg/kg IV	#mg	100	200	300	400	500	600	700
S	sodium bicarbonate	Asystole, PEA, VF/VT	1mEq/kg IV push	#mEq	5	10	15	20	25	30	35
	sodium nitrite	Major Incident	0.33 cc/kg of 3% solution slow IV push, not to exceed 10 cc	#cc	1.5	3	4.5	6	7.5	10	12
	sodium thiosulfate	Major Incident	412.5 mg/kg IV (1.65 mL/kg) at 3-5 mL/min	#cc	8.25	16.5	25	33	40	50	58
T	terbutaline	Asthma	0.01 mg/kg SQ, max= 0.25 mg	#mg	0.05	0.1	0.15	0.2	0.25	0.3	0.35
	tetracaine	Eye Trauma	0.5%	drops	1	1	1	2	2	2	2

Air Ambulance (Helicopter)

1. An air ambulance may be called to the scene in severe trauma cases if scene time and transport time will be prolonged and if a landing site is available. The air crew will determine which trauma center is appropriate to receive the patient.

2. An air ambulance may be called with authorization from Medical Control in cases of critical illness or injury. The air crew will determine which specialized care center is appropriate to receive the patient.

3. Listed below are the air ambulance services that are available for scene response. Their aircraft bases are noted to provide geographic reference, but estimated time of arrival to a request should be obtained by calling the individual service.

Air Ambulance Service	**Telephone**
Life Flight UMASS-Memorial (Worcester, Massachusetts)	1-800-343-4354
Life Star (Hartford and Norwich, Connecticut)	1-800-221-2569
Med Flight (Bedford and Plymouth, Massachusetts)	1-800-233-8998

PROCEDURE

1. Contact air ambulance service. **Note:** If transport by air ambulance is to be undertaken, early contact with an air ambulance service is essential. Care of the patient should not be interrupted.

2. Select, prepare, and approach the landing site only as directed by the air ambulance service.

3. Identify a landing area with a minimum open space of 60 feet by 60 feet (100 feet by 100 feet for night landings).

4. Inform the air ambulance service of any obstacles at the landing site (trees, telephone lines, antennas, etc.).

5. Secure the landing area to prevent unauthorized persons from approaching the air ambulance.

6. Keep the landing zone clear of loose articles and hazardous debris, and protect the patient from rotor wash.

7. Keep well clear of the landing area when the air ambulance is approaching or taking off.

8. Do not approach the air ambulance unless requested by the flight crew.

9. If requested, approach within the pilot's field of vision.

10. Carry equipment horizontally, below your waist level; **never upright or over your shoulder.**

11. Follow the suggestions of the flight crew when assisting near the air ambulance.

12. **No smoking** in or within 50 feet of the air ambulance.

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Cricothyrotomy [*EMT-Ps only*]

1. Indications: cricothyrotomy may be performed with authorization from Medical Control, and as a standing order if unable to contact Medical Control, in the following circumstances:
   - 1.1 for a patient with evidence of respiratory failure or apnea, when all other methods of opening and maintaining a patent airway have been attempted and have failed;
   - 1.2 when there is severe laryngeal trauma;
   - 1.3 when there is foreign body upper airway obstruction that cannot be removed with direct laryngoscopy.
2. Under no circumstances should transportation be delayed.
3. Unless contraindicated, place and maintain the patient's head in hyperextension to position the larynx as far anterior as possible.
4. Locate the cricothyroid membrane, between the thyroid and cricoid cartilages, and prepare the site with an antiseptic solution, using aseptic or sterile technique.
5. Surgical technique, for patients ≥8 years of age:
   - 5.1 Stabilize the site. Use a scalpel to make a small midline incision through the overlying skin.
   - 5.2 Within the surgical wound, use the scalpel to make a transverse incision through the cricothyroid membrane, taking care not to incise too deeply or too laterally.
   - 5.3 If necessary to widen the incision, invert the knife and rotate the handle.
   - 5.4 Insert an appropriate cannulating device (eg: tracheostomy or endotracheal tube) to maintain the patency of the surgical opening.
   - 5.5 Confirm placement and patency by observing chest rise with ventilation/inspiration; listening for air exchange through the surgical airway; and observing clinical improvements.
   - 5.6 Stabilize and secure the cannulating device.

6. Percutaneous ("needle") technique for patients <8 years of age:
   - 6.1 Connect a 10 mL syringe to a large bore, over-the-needle catheter placement unit.
   - 6.2 Stabilize the site. While applying gentle suction to the syringe, angle the needle caudally, and puncture the skin and cricothyroid membrane.
   - 6.3 Confirm entry into the trachea by aspirating air. Advance the catheter while withdrawing the needle.
   - 6.4 Fit an adapter to the hub of the catheter (eg: a 3.0 or 3.5 mm ET tube adapter, or the barrel of a syringe).
   - 6.5 Confirm placement and patency by observing chest rise with ventilation/inspiration and observing clinical improvements.
   - 6.6 Apply intermittent positive-pressure or continuous high-flow oxygen, as indicated; pause for "passive exhalation" as indicated.
7. Stabilize and secure the cannulating device.
8. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

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Defibrillation Procedure: AED

EMTs trained to use a semi-automatic or automatic external defibrillator (AED) are authorized to perform automated external defibrillation.

1. Use of fully automatic or semi-automatic defibrillators is permitted for all patients ≥ 1 year of age. Infant paddles and a manual defibrillator are indicated for patients <1 year of age (see *Defibrillation Procedure: Manual Defibrillation* protocol).

   1.1 For patients between 1 and 8 years of age, it is highly recommended that fully automatic or semi-automatic defibrillators with a pediatric attenuator system be used. This decreases the delivered energy to doses suitable for children, and with particular capability that includes sensitivity and specificity for pediatric shockable rhythms.

2. Immediately upon arrival, verify cardiac arrest (unresponsive, no respirations, no pulse)

3. Initiate CPR if there is a delay in attaching the AED or if the cardiac arrest was not witnessed by the EMT. **A Witnessed Cardiac Arrest is one where the patient's collapse and pulselessness occur in the presence of the EMT *and* a defibrillator shock can be delivered within 30 seconds.**

4. Initiate AED when recommended by the 2005 AHA Guidelines (see appropriate protocols, may be after 2 minutes of CPR)

   4.1 Turn defibrillator power on (Note**:** recorder may be turned on separately).

   4.2 Begin verbal report, if applicable.

5. Attach electrode pads.

   5.1 Use the largest size paddles or self-adhering electrodes that will fit on the chest without touching (leave at least 1.5 inches/3cm between paddles/electrodes).

   5.2 Use pediatric paddles or self-adhering electrodes, if available, for patients between the ages of 1 and 8. Infant paddles and a **manual defibrillator** are indicated for patients <1 year of age. Use adult standard paddles/pads for all patients ≥1 year old (10 kg) and ensure adequate spacing (>3 cm) between paddles/pads. Anterior/posterior placement where possible is preferred.

5.3 Clear the patient.

5.4 Switch to "assess" mode

5.5 Follow directions of AED and the 2005 AHA Guidelines to deliver shocks.

6. If a pulse is restored after defibrillation, follow the *Chest Pain in a Suspected Cardiac Patient* or other appropriate protocol.

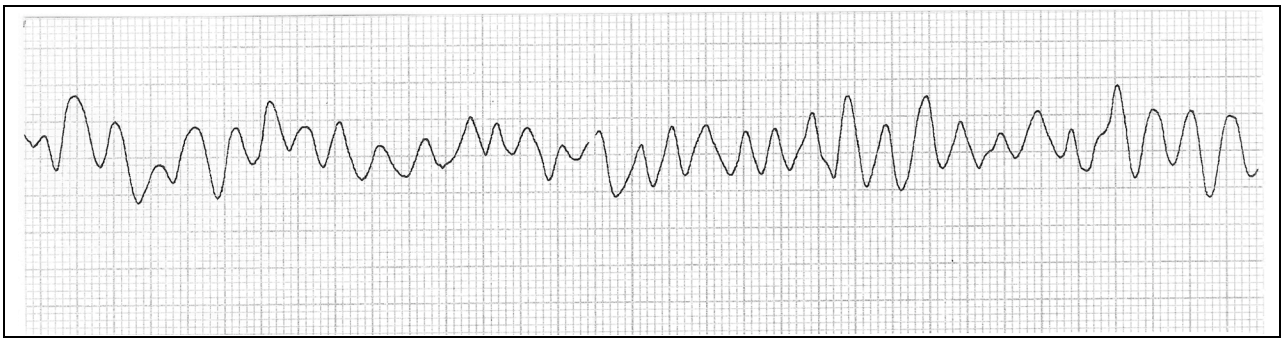
7. If a pulse is not restored after defibrillation, follow the *Cardiac Arrest* or other appropriate protocol.

8. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

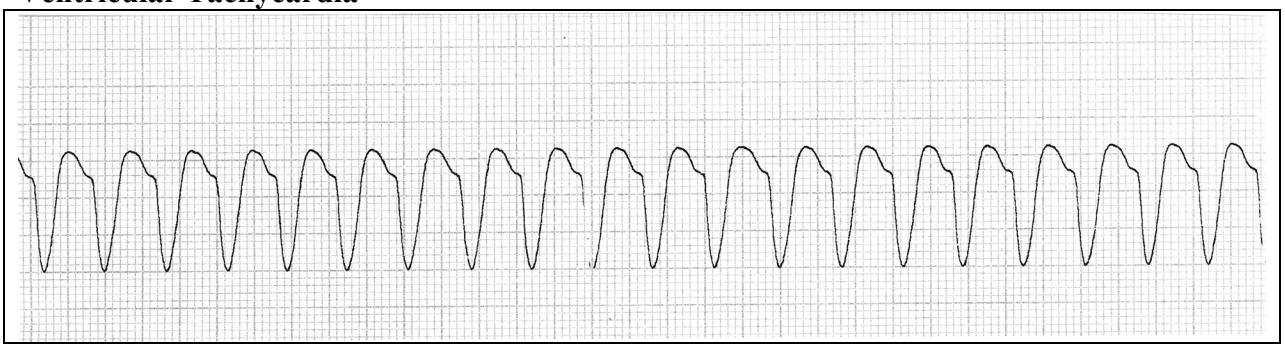
Safety Consideration: Stop the vehicle prior to all defibrillations using hand-held paddles and if necessary to assess the patient rhythm. Proceed cautiously while defibrillating using self-adhering electrodes.

Defibrillation Procedure: Manual Defibrillation

Ventricular Fibrillation



Ventricular Tachycardia



RECOGNITION

Unresponsive, apneic, pulseless patient **with either ventricular fibrillation (VF) or ventricular tachycardia (VT) on a cardiac monitor.**

PROCEDURE

1. Only EMTs who are trained and currently licensed/certified by the RI Department of Health to use a manual defibrillator may perform manual defibrillation during prehospital care.

   1.1 Use of defibrillators **without low energy levels (5-200 joules monophasic)** is permitted only for patients ≥ 8 years of age or whose weight is ≥ 25 kg/55 lbs.

   1.2 Use standard (adult) size paddles for all patient who weigh more than 10 kg (˜25 lbs); use "pedi" (ie: infant) paddles only for patients who weight less than 10 kg/25 lbs (about 1 year of age). Use the largest size paddles or self-adhering electrodes that will fit on the chest without touching (leave at least 1.5 inches/3cm between paddles/electrodes). Anterior/posterior placement where possible is preferred.

2. Check the pulse. Defibrillate only if the pulse is absent and the rhythm is ventricular fibrillation (VF) or ventricular tachycardia (VT).

   2.1 Record initial ECG rhythm and attempted defibrillations; attach copies of the rhythm strips to the hospital copy of the *RI EMS Ambulance Run Report,* as part of required documentation.

3. Immediately attempt defibrillation as indicated below:

   3.1 Adult patients:

      3.1.1 Defibrillate at **360 joules** monophasic or manufacturer's biphasic setting (typically 200 Joules).

      3.1.2 Immediately resume CPR and perform any additional defibrillations per current AHA guidelines.

   3.2 Pediatric patients defibrillate as indicated below. Use Pediatric Dosing Device to determine patient weight in kg.

      3.2.1 Defibrillate at **2 joules/kg** (~1 joule/lb) monophasic or manufacturer's biphasic setting.

      3.2.2 Immediately resume CPR and perform any additional defibrillations per current AHA guidelines.

      3.2.3 All subsequent defibrillations to be at $\geq$4 **joules/kg (~ 2 joules/lb)** monophasic or manufacturer's biphasic setting.

4. If the pulse is restored after defibrillation, follow the *Chest Pain in a Suspected Cardiac Patient* or other appropriate protocols.

5. If a pulse is not restored after defibrillation, follow the *Cardiac Arrest* protocol.

6. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

Safety Consideration: Stop the vehicle prior to all defibrillations using hand-held paddles or if necessary to interpret the patient's rhythm. Proceed cautiously while defibrillating using self-adhering electrodes.

EMS Scene Photographs (Optional Procedure)

Purpose:

Research shows that there is a direct correlation between severity of injury to car crash trauma patients and the amount and type of motor vehicle damage. This damage provides invaluable information about the mechanism of injury and can help medical personnel better diagnose and treat a victim's injuries.

Procedure:

1. EMS personnel respond to call.
2. Provide patient care per protocol and transfer patient to rescue/ambulance.
3. Photograph maximum points of impact.
4. Photograph interior specifically where patient was located. **DO NOT PHOTOGRAPH THE PATIENT.**
5. Continue care and transport patient without delay to a *HOSPITAL EMERGENCY FACILITY*.
6. Complete *RI EMS Ambulance Run Report*, and attach photos to the hospital copy.
7. Present *RI EMS Ambulance Run Report* and attached photos to medical personnel.
8. Check film status in camera and reload film if necessary.

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Endotracheal Intubation

1. ***Only EMTs*** who are licensed/certified by the RI Department of Health to perform endotracheal intubation may perform endotracheal intubation during prehospital care. ***EMT-Ps only*** may attempt to intubate newborn infants (<1 month old).

2. Use the following guidelines to select the appropriate size tube. When using cuffed endotracheal tubes, check to ensure that the cuff is intact, and does not leak air.

2.1 Adult Patients ≥ 16 years of Age

Gender	*Age*	*Endotracheal Tube Size*
Male	≥ 16 years of age	8.0 mm
Female	≥ 16 years of age	7.0 mm

2.2 Pediatric Patients (Toddlers-Children <35 kg/75 lbs)

Use the endotracheal tube size recommended by the Pediatric Dosing Device. If the device is unavailable, use the following formula to determine the correct size:

ETT size (mm ID) = **age (in years)** **+4**
4

Example:
ETT size for 6 year old = **6** +**4**
4

= **1.5** **+4**

5.5 mm ID

2.3 EMT-Ps only Newborn Patients (Premature-Full Term Infants)

Weight kg	Gestational Age weeks	Laryngoscope Blade Size	Endotracheal Tube Size	Depth of Insertion from Upper Lip
<1	<28	0	2.5	6.5-7.0
1-2	28-34	0	3.0	7.0-8.0
2-3	34-38	0-1	3.5	8.0-9.0
>3	>38	1	3.5-4.0	>9.0

3. If using a stylette, it should be placed inside the tube to one-half inch from end. It must not protrude beyond the end of the tube.

4. Prior to intubation, ventilate and oxygenate the patient whenever possible. Suction equipment should be available during intubation, and used to remove debris when necessary.

5. Unless C-spine trauma is suspected, place the patient in the "sniffing position". In this position, the neck is flexed (to elevate the occipital region), and the head is hyperextended. Insert the laryngoscope with the left hand. Place the blade to the right of the midline and push the tongue to the left, so that the blade rests in the midline.

   5.1 If C-spine trauma is suspected, an assistant should maintain the patient's head in the neutral anatomical position and perform a jaw thrust to open the patient's mouth. Attempt to intubate with care, to avoid moving the patient's head or neck.

6. Slowly advance the blade. A curved blade should enter the vallecula; a straight blade should rest beneath the epiglottis. Exert gentle traction upward; do not use the teeth as a fulcrum.

7. Visualize the vocal cords and insert the appropriate size endotracheal tube between the cords. Use the right hand to guide the tube from the right side of the mouth into the midline, and pass the tube through the vocal cords. Tube placement efforts may be repeated once during each intubation attempt. Each intubation attempt should not take more than 30 seconds. A second person should time the procedure and call out when 30 seconds have passed. After unsuccessful attempt resume ventilation with a bag-valve-mask device using high flow **OXYGEN**. This is best performed as a two-person procedure with one person assuring a mask seal while the other provides adequate ventilation volume. After the patient is re-oxygenated, a second attempt is permitted. Any further attempts at endotracheal intubation require the approval of Medical Control and must be undertaken while en route.

8. If a cuffed tube is used, inflate the cuff with enough air to occlude back flow when ventilating the patient. Avoid over-inflation as it causes tracheal damage.

9. Confirm proper tube placement through a combination of clinical and objective means. Observe the chest for a rise and fall with ventilations and observe the tube for condensation with each ventilation. Auscultate in six locations:

   - over the epigastrum to check for esophageal placement,
   - over both sides of the chest in two positions each to check for main stem intubation and other complications such as pneumothorax, and
   - over the lower anterior neck to check for air leak at the cuff.

   All endotracheal intubations **must** also have placement confirmed with an objective tube placement verification device (Easy-Cap®, Tube-Check®, or end-tidal carbon dioxide detector) to confirm endotracheal placement.

10. Insert an oropharyngeal airway or other appropriate device as a bite-block to protect the tube. Secure the tube to prevent displacement and stabilize the head and neck to prevent motion that may dislodge the endotracheal tube (i.e. cervical collar and backboard).

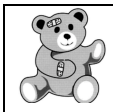
11. When an endotracheal tube is in place, an EMT licensed/certified by the RI Department of Health to perform endotracheal intubation on patients of similar age must be in attendance continuously managing the airway.

▼ ***ALS PERSONNEL***

12. Medication may be administered through the endotracheal tube, as indicated in the *RI EMS Prehospital Care Protocols and Standing Orders,* using one of the following techniques. For medications to be administered through the ET tube, use 2.0-2.5 times the usual IV dose.

12.1 Dilution technique:

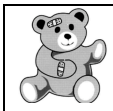
12.1.1 Adult patients: Add enough **NORMAL SALINE** to the medication to make a total volume of 10 mL. Inject the diluted medication down the ET tube.



12.1.2 Pediatric patients <5 feet tall (<35 kg/75lbs): Add enough **NORMAL SALINE** to the medication to make a total volume of 3- 5 mL. Inject the diluted medication down the ET tube.

12.2. Flush technique:

12.2.1. Adult patients: After injection of the medication down the ET tube, inject 10 mL of **NORMAL SALINE** down the ET tube to flush the medication and then ventilate.



12.2.2 Pediatric patients <5 feet tall (<35 kg/75lbs): After injection of the medication down the ET tube, inject 3-5 mL of **NORMAL SALINE** down the ET tube to flush the medication and then ventilate.

13. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report*.

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Esophageal Obturator Airway (EOA)

1. ***Only EMTs*** who are trained and licensed/certified by the RI Department of Health to use the Esophageal Obturator Airway (EOA) may insert an esophageal obturator airway during prehospital care. The EOA is considered an airway management adjunct, not an advanced airway.

2. Use the esophageal obturator airway (EOA) only in deeply unconscious patients without a gag reflex. This usually means cardiac arrest, but may occur in other settings of respiratory failure.

3. **Do not** use the EOA for any of the patients listed below:

    - Conscious or semi-conscious patients;
    - Children, and adult patients <5 feet tall;
    - Patients known or suspected to have swallowed corrosive materials;
    - Patients known or suspected to have diseases of the esophagus;
    - Patients with inhalation burn injuries;
    - Trauma patients.

4. Do not interrupt ventilation for more than 30 seconds to insert the EOA.

5. Whenever possible, ventilate the patient with **OXYGEN** prior to EOA insertion.

6. Never use force to insert the EOA.

7. Always check to see that the chest rises with ventilation efforts after insertion of the EOA and that there are bilateral breath sounds, and recheck periodically thereafter. Whenever possible, confirm proper EOA placement using pulse oximetry and/or end-tidal CO_2 measurement if available.

8. Do not remove the EOA in the field unless the patient begins breathing spontaneously or assessment determines that the EOA is or has become incorrectly positioned.

9. If you do remove the EOA, be prepared for regurgitation with suction immediately available.

10. Procedure:

    10.1 Assemble EOA.

10.2 Flex the head slightly.

10.3 Grasp lower jaw and tongue between thumb and index fingers and lift upwards; or use head tilt but keep mouth open and do not hyperextend the neck.

10.4 With the mask attached, insert tube into mouth and place so that the curvature of the tube is the same as the curvature of pharynx.

10.5 Advance the tube into the esophagus and seal mask firmly over nose and mouth. It is best to have one EMT hold the mask seal and a second EMT operate the BVM attached to the EOA.

10.6 Ventilate and see if the chest rises.

10.7 If the chest does not rise, remove EOA. Ventilate with an alternate method and attempt reinsertion.

10.8 Once chest rise with ventilation is assured, inflate obturator cuff with 30-35 mL of air.

10.9 Ventilate with bag valve mask device to achieve chest rise.

10.10 Listen with stethoscope in at least 2 locations on each side of the chest to assess for bilateral breath sounds.

10.11 Listen for air escape over epigastrum with stethoscope.

10.12 Whenever possible, confirm proper EOA placement using pulse oximetry and/or end-tidal CO_2 measurement if available.

10.13 If, after listening to the lungs and over the epigastrum, there are inadequate breath sounds and there is air escape over the epigastrum and/or there are indications by pulse oximetry or end-tidal CO_2 measurement that the EOA is not correctly placed, the EOA should be removed. Ventilate the patient with an alternate method, check the balloon for leaks and reinsert.

10.14 Frequently recheck EOA position using all available means.

10.15 When an EOA is in place a qualified EMT must be in attendance continuously managing the airway.

11. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

Foreign Body Airway Obstruction

Unconscious patient

RECOGNITION:

A patient who has become unconscious during attempts to clear a foreign body airway obstruction, or who is found unconscious with a history of choking or who is found unconscious and found to have a foreign body airway obstruction upon assessment and treatment efforts.

TREATMENT

1. Follow the *Airway Management and Respiratory Support* protocol to clear and maintain a patent airway. Any patient who is conscious and coughing forcefully is considered to have a mild airway obstruction and should be allowed to make their own efforts to clear their airway. Assist ventilation as necessary for unconscious patients.

    1.1 Hyperextend neck and establish airway by chin lift or triple airway maneuver.

        1.1.1 If head/neck injury is present or suspected, perform jaw thrust without head tilt. Extension of the neck is contraindicated in trauma.

    1.2 If the initial effort at inflation of the lungs is unsuccessful, clear any visible debris from oral cavity (well-fitting dentures excluded). Re-position the airway and again try to inflate the lungs. Do not perform finger sweeps unless foreign material is visible.

2. If patient still cannot be ventilated, follow current AHA guidelines for performance of chest or abdominal thrusts to attempt to clear the airway.

    2.1 Attempt the sequence specified above for up to 1 minute. If ventilation is still impossible, attempt to ventilate by applying positive pressure by mouth-to-mask or bag-valve-mask device.

    2.2 EMTs trained and licensed/certified by the RI Department of Health to perform endotracheal intubation may utilize the laryngoscope and suction or long forceps to remove the obstructing foreign body if chest thrusts, finger sweep, and forceful ventilation are ineffective.

    2.3 If foreign body is removed and patient remains apneic, perform endotracheal intubation.

3. ***EMT-Ps only***: perform cricothyrotomy if unable to relieve obstruction or perform endotracheal intubation following the *Cricothyrotomy* protocol.

4. Contact Medical Control.

5. Transport the patient without delay to the nearest *HOSPITAL EMERGENCY FACILITY.*

6. Document all incident information by completing the *RI EMS Ambulance Run Report.*

Glasgow Coma Scale and "AVPU" Scale

Glasgow Coma Scale

EYES	*Adult*	*Child*	*Infant*	Score
	Open **spontaneously** during initial assessment.	Open **spontaneously** during initial assessment.	Open **spontaneously** during initial assessment.	4
	Open **to verbal stimulus.**	Open **to verbal stimulus.**	Open **to verbal stimulus.**	3
	Open only **to painful stimulus.**	Open only **to painful stimulus.**	Open only **to painful stimulus.**	2
	Do not open during initial evaluation period.	**Do not open** during initial evaluation period.	**Do not open** during initial evaluation period.	1
VERBAL	*Adult*	*Child*	*Infant*	Score
	Oriented to person, place, time.	**Oriented** to person, place, time.	**Coos and babbles.**	5
	Converses, but is **disoriented** or **confused.**	Converses, but is **disoriented** or **confused.**	**Irritable cries.**	4
	Disoriented; speech clear, but **inappropriate.**	**Disoriented**; speech clear, but **inappropriate.**	**Cries to pain.**	3
	Garbled. Includes grunting or moaning.	**Garbled.** Includes grunting, moaning, non-specific sounds.	**Moans to pain.**	2
	No verbal responses to any stimulation.	**No verbal responses** to any stimulation.	**No verbal responses** to any stimulation.	1
MOTOR	*Adult*	*Child*	*Infant*	Score
	Obeys verbal commands by moving extremities or facial muscles (if C-spine injuries).	**Obeys** verbal commands by moving extremities or facial muscles (if C-spine injuries).	Moves **spontaneously** and **purposely.**	6
	Can **localize** a painful stimulus by moving an extremity to an injured area in a purposeful manner.	Can **localize** a painful stimulus by moving an extremity to an injured area in a purposeful manner.	**Withdraws** to touch.	5
	Withdraws an extremity from painful stimulus, but unable to localize/prevent recurring pain.	**Withdraws** an extremity from painful stimulus, but unable to localize/prevent recurring pain.	**Withdraws** in response to painful stimulus.	4
	Abnormal **flexor response** to painful stimulus, ie: decorticate (flexion) posturing.	Abnormal **flexor response** to painful stimulus, ie: decorticate (flexion) posturing.	Abnormal **flexor response** to painful stimulus, ie: decorticate (flexion) posturing.	3
	Abnormal **extensor response** to painful stimulus, ie: decerebrate (extension) posturing.	Abnormal **extensor response** to painful stimulus, ie: decerebrate (extension) posturing.	Abnormal **extensor response** to painful stimulus, ie: decerebrate (extension) posturing.	2
	No response, no motion to any painful stimulus.	**No response**, no motion to any painful stimulus.	**No response**, no motion to any painful stimulus.	1

Glasgow Coma Score = "Eyes" score + "Verbal" score + "Motor" score: ☐

"AVPU" Scale

A	=	Patient is conscious and ***alert.***
V	=	Patient is responsive to ***verbal*** stimuli.
P	=	Patient is responsive to ***painful*** stimuli.
U	=	Patient is ***unresponsive*** to any stimuli.

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Interfacility Transfer

Purpose

To clarify the staffing patterns, vehicle selection, and scope of authority of individuals attending patients during interfacility transfers.

Definitions

Infusion device:

An IV infusion pump capable of strict mechanical control of an IV infusion drip rate **must** be used with all admixtures to ensure accurate dosage administration and prevent excessive flow rates. Passive or gravity-controlled flow rate devices are unacceptably inaccurate to control admixture medication administration.

Interfacility transfer:

A patient transfer between licensed health care facilities.

EMT-B, EMT-I, EMT-C, EMT-P:

As defined in the *Rules and Regulations Relating to Emergency Medical Services (R23-4.1 –EMS), Rhode Island Department of Health.*

RN: A Rhode Island licensed Registered Nurse meeting the appropriate standards of care pertinent to the patient's condition, as determined by the referring physician.

PA: A Rhode Island licensed Physician's Assistant meeting the appropriate standards of care pertinent to the patient's condition, as determined by the referring physician.

Physician: A Rhode Island licensed physician.

Referring Physician:

The physician at the point of origin of the transfer directly responsible for the patient's care.

Classification Protocol

The patient classification shall be determined by the referring physician. The following system shall be used to define classes of patients with their respective minimum vehicle and personnel requirements.

Class A: Clearly and completely stable patients with minimal potential to decompensate en route. Example: Patient with no running IV line, going for routine test. **Staffing: *EMT-B/I.* Vehicle: BLS; Class: A-1, A-1A, A-2, B .**

Class B: Stable as above with IV running, no medications in the fluids. Example: Cancer patient with maintenance fluids running. **Staffing: *EMT-B/I* + *EMT-C* or *EMT-P*. Vehicle: ALS; Class: A-1, A-1A.**

Class C: Has been stabilized as much as possible, but may deteriorate en route. Has no medications being administered or infusion devices in use, which are beyond the scope of the assigned EMTs. Approved medications are listed in the *RI EMS Prehospital Care Protocols and Standing Orders.* Dial-a-Flow® or similar devices are not approved for this purpose. ***EMT-Cs*** and ***EMT-Ps*** who have successfully completed Department-approved IV infusion pump training may transport patients within this protocol. Example: Cardiac patient on **LIDOCAINE** drip who can be given sublingual **NITROGLYCERIN** for chest pain. **Staffing: *EMT–B/I* + *EMT-C* or *EMT-P*, depending on medications. Vehicle: ALS; Class: A-1, A-1A.**

Class D: Patient with acute medical problem who may become unstable en route. Requires administration of drugs not in the approved *RI EMS Prehospital Care Protocols and Standing Orders.* In addition, the patient may develop complications where treatment is beyond the capabilities of the assigned EMTs. Example: ICU transfer with IV **NITROGLYCERIN** drip and receiving thrombolytic drug infusion en route. **Staffing: EMT-B/I + EMT-C /EMT-P + RN/ PA / Physician Vehicle: ALS; Class: A-1, A-1A.**

EMT-Ps who have successfully completed Department-approved training in IV **NITROGLYCERIN** and IV anticoagulants may transport patients within this protocol. ***EMT-Cs*** and ***EMT-Ps*** who have successfully completed Department-approved IV infusion pump training may transport patients within this protocol.

In cases where an ALS unit is required and the hospital makes a reasonable effort to utilize an ALS unit and is unable to access one due to time constraints or patient condition, a BLS unit may be utilized, providing that appropriate supplies, equipment (refer to Addendum A), qualified staff and written/verbal orders have been provided.

Scope of Authority

Class A, B, or C transfers:

The EMT with the highest level of training will assume ultimate authority for patient treatment within the scope of the appropriate *RI EMS Prehospital Care Protocols and Standing Orders.* Medical Control shall assume such responsibility when called for by the respective protocol.

Class D:

The ultimate authority rests with the referring physician, as defined above. If no physician is present during transport, the RN or PA shall assume ultimate authority for the case.

Notwithstanding the requirements of the regulations and the protocols, hospitals may elect to transport a patient with hospital staff. In such cases, the hospital has ultimate authority for patient management, providing written/verbal orders accompany the patient. In the absence of hospital staff, the EMT with the highest level of training will assume ultimate authority for patient treatment within the scope of the appropriate protocols. Medical Control shall assume such responsibility when called for by the respective protocol.

Addendum A

1. Manual defibrillator unit with integral oscilloscope, strip chart recorder and synchronized cardioversion capability.

2. Sterile intravenous solutions of **NORMAL SALINE** or **LACTATED RINGER'S**, preferably in 500 mL plastic bags with administration kits (at least 2 of each), and **D5W** (100 or 200 ml) in appropriate bag and administration kit (PVC Free) for administration of **AMIODARONE**.

3. IV catheters (3 each of 14,16,18,20 gauge).

4. Supply of current ALS medications authorized by the RI Department of Health, as listed below:

Adenosine	Diltiazem	Glucagon	Nitro spray/nitroglycerin
Amiodarone	Diphenhydramine HCL(oral)	Hydrocortisne SS	Phenobarbital Sodium
Atropine Sulfate	Diphenhydramine HCL(injectable)	Lidocaine HCL	Phenytoin Sodium (Dilantin)*
Calcium Chloride	Dopamine HCL	Magnesium Sulfate	Sodium Bicarbonate
Dextrose 25%($D_{25}W$)	Epinephrine 1:1000	Midazolam	Thiamine Sulfate
Dextrose 50%($D_{50}W$)	Epinephrine 1:10,000	Morphine Sulfate	Verapamil HCL
	Furosemide	Naloxone	

*Phenytoin Sodium (Dilantin) for ***EMT-Ps only*** (interfacility maintenance only).

5. Biohazardous waste: Disposable sharps (hypodermic needles, etc.) should be placed in a container designed for such purpose.

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IV Access and Admixtures [ALS]

1. General Principles:

1.1 If unable to establish an IV before beginning to transport and adult patient within two (2) attempts or five (5) minutes, any additional attempts must be undertaken en route.

1.2 IV access may be difficult to obtain in infants and children, particularly those who are cold or in shock. Although many pediatric patients will benefit from prehospital intravenous (IV) therapy, establishing an IV should not unnecessarily delay transport. In general, IV attempts on scene should be limited to less than five minutes for stable patients, and two minutes for unstable patients; further attempts may be made en route.

1.3 Attempts to establish IVs for both adult and pediatric patients should be made in the peripheral veins of the upper extremities, whenever possible.

1.3.1 ***EMT-Ps only*** may attempt to establish an IV in the external jugular vein.

1.4 **NORMAL SALINE (NS) and LACTATED RINGER'S (LR)** solution are the IV fluids of choice for all prehospital patients.

1.5 The "keep vein open" (KVO) rate for both adult and pediatric patients is approximately 20 mL/hour.

1.6 Fluid challenges for adult patients should be administered as 250-500 mL boluses of **NORMAL SALINE** or **LACTATED RINGER'S** solution, administered as rapidly as possible, or as ordered by Medical Control.

1.7 Fluid boluses for pediatric patients should be administered as 20 mL/kg of **NORMAL SALINE** or **LACTATED RINGER'S** solution over 5-10 minutes, or as ordered by Medical Control.

1.8 For patients who have poor circulation or are in cardiac arrest, follow each dose of IV medication with a rapid flush of **NORMAL SALINE** or **LACTATED RINGER'S** solution as indicated below.

1.8.1 Adult patients: flush with 20 mL of **NORMAL SALINE** or **LACTATED RINGER'S** solution.

1.8.2 Pediatric patients <5 feet tall (<35 kg/75 lbs): flush with 5-20 mL of **NORMAL SALINE** or **LACTATED RINGER'S** solution.

2. The medications listed in the following table may be administered by IV bolus and followed by an IV infusion ("drip") , as indicated in the *RI EMS Prehospital Care Protocols and Standing Orders. All IV infusions ("drips") must be delivered by IV Pump*

   2.1 The table below also shows the recommended admixture rations and yields for adult patients.

Medication	*Preparation*	*Yield*
AMIODARONE	150mg in 100 mL D5W	1.5mg/mL
DOPAMINE	400 mg in 250 mL NS	1600 micrograms/mL
EPINEPHRINE	1 mg in 250 mL NS	4 micrograms/mL
LIDOCAINE	1 gm in 250 mL NS	4 mg/mL

   2.2 For pediatric patients < 5 feet tall (<35 kg/75lbs), a pediatric dosing device provides rate and admixture information.

   2.3 Procedure:

      2.3.1 Contact Medical Control

      2.3.2 Identify medication to be given by name, dosage and route.

      2.3.3 Set up new IV bag and drip regulation device.

      2.3.4 Wipe injection site with antiseptic swab.

      2.3.5 Recheck medication and dosage, inject it into IV bag while maintaining aseptic technique.

      2.3.6 Admixtures are to be "piggy-backed" into an established IV of **NORMAL SALINE** or **LACTATED RINGER'S** solution with the exception of **AMIODARONE**, which requires an isolated IV of **D5W** and appropriate IV administration kit (PVC free).

      2.3.7 An IV infusion pump capable of strict mechanical control of an IV infusion drip rate **must** be used with all admixtures to ensure accurate dosage administrant and prevent excessive flow rates. Passive or gravity-controlled flow rate devices are unacceptably inaccurate to control admixture medication administration.

      2.3.8 With special attention to maintaining proper infusion rate, the patient must be placed on a cardiac monitor, and vital signs must be re-assessed frequently during transport to a *HOSPITAL EMERGENCY FACILITY.*

3. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

IV Access (EMT-Ps Only)

1. Intraosseous (IO) access:

   1.1 Intraosseous (IO) infusion is indicated for patients with shock, respiratory or cardiac arrest or as directed by Medical Control for whom attempts to establish IV access have been unsuccessful or are inappropriate.

   1.2 Use of an IO infusion is contraindicated by trauma to, or infection of, the extremity under consideration, and by preexisting bone disease.

   1.3 The intraosseous route for IV fluids and/or IV medications may be substituted for the intravenouse route, whenever IV access is indicated.

   1.4 Procedure:

      1.4.1 Locate an appropriate site (usually the anteromedial surface of the proximal tibia, inferior to the tibial tuberosity or the lateral humerus) and prepare the site with an antiseptic solution, using aseptic or sterile technique. Sternal IO access is not allowed.

      1.4.2 Use a commercially available intraosseous cannulation device according to the manufacturer's instructions. Check the site for evidence of infiltration, and re-check frequently. Stabilize and secure the IO device and IV tubing.

   1.5 Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

2. Central Venous Cannulation

   2.1 Central venous cannulation is indicated in any of the following circumstances.

      2.1.1 When attempts to establish peripheral IV or IO access are unsuccessful for a patient in cardiac arrest.

      2.1.2 After peripheral IV access is established for a patient in cardiac arrest

      2.1.3 With authorization from Medical Control.

   2.2 Attempt to cannulate any of the central veins listed below:

      2.2.1 Internal jugular vein

      2.2.2 Femoral vein

      2.2.3 Subclavian vein

2.3 Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

3. Umbilical Venous Catherization

3.1 Umbilical venous access is indicated for newborns who require resuscitation with medications or fluids which cannot be administered by the endotracheal route, and for whom attempts to establish IV or IO access have been unsuccessful.

3.2 Procedures:

3.2.1 Apply a ligature at the base of the cord to control bleeding, and locate the umbilical vein. Prepare the cord with an antiseptic solution using aspectic or sterile technique.

3.2.2 Use a commercially available umbilical catheter (or an IV catheter without a needle if nothing else is available). Attach a syringe, then flush and fill the catheter with **NORMAL SALINE** or **LACTATED RINGER'S** solution.

3.2.3 Introduce the catheter so that the distal tip is just dep to the abdominal wall. Aspirate blood to confirm placement, then flush with 1-2 mL or **NORMAL SALINE** or **LACTATED RINGER'S** solution.

3.2.4 Connect IV administration set and infuse fluids and/or medications at the desired rate.

3.2.5 Stabilize and secure the catheter and IV tubing.

4. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

Major Incident

Hazardous Materials / Multiple Casualties / Disasters / Technical Rescue

1. OVERVIEW

1.1. **Hazardous Materials** include WMD agents, chemical agents, biologic agents, radioactive materials, unstable or explosive compounds, and other noxious or hazardous materials.

1.2. A **Multiple Casualty Incident (MCI)** is one that generates large numbers of patients and often makes traditional EMS response ineffective because of special circumstances surrounding the event. Such incidents may require varying levels of response:

- **Class One MCI:** Declared by the Incident Commander upon either:
  - A Level 3 request for resources (as defined by the *Southern New England Fire Emergency Assistance Plan*); or
  - Establishment of an equivalent amount of resources on-scene as defined in the *Southern New England Emergency Fire Assistance Plan*.

  A Class One MCI can be handled by **local resources** and the existing *Southern New England Fire Emergency Assistance Plan* including the use of the regional Mass Casualty Incident Support trailers.

  The declaration of a Class One MCI implies that notifications are to be made from Incident Command to: RIEMA via (401) 946-9996 (24/7) and Local area hospital(s) via the Nextel radio network.

- **Class Two MCI:** Declared by the Incident Commander utilizing the same criteria and notification procedure described in a Class One MCI. In addition, requires immediate **state intervention** to begin planning for a prolonged event.

- **Class Three MCI:** Requires a significant expansion of all areas of command and general staff positions utilized in a Class Two MCI, along with the likelihood of **federal intervention** and a national disaster declaration.

1.3. A **Disaster** is a situation requiring extensive resources in number, scope, type, or time commitment.

1.4. A **Technical Rescue Situation** is one where significant hazard(s), time and/or situation(s) require assistance gaining access to and/or extricating a victim or victims.

1.5. While these situations may differ or overlap, this protocol provides guidance for such situations, together referred to as **Major Incidents**. Persons involved in Major Incidents may be:

- **Victims**: persons affected by the incident, regardless of location or injury.
- **Casualties**: persons directly ill or injured by the incident events.
- **Patients**: casualties or victims who seek professional medical attention related to the incident events.

1.6. Major incidents present additional challenges.

- There may be gaps in immediately available resources followed by an uncontrolled excessive response. Initially, there may be too few EMTs to locate, treat and transport all patients. Later, scene access and operations may be overwhelmed by excess response unless the perimeter is well controlled.
- The situation (hazardous materials, terrorist incident, crime scene, etc.) may present unique challenges and require operations in PPE (personal protective equipment) or other protective equipment.
- A major incident may be statewide, or may involve a single victim in a challenging situation.
- The response, if not well-coordinated, may cause confusion and inefficiency sufficient to harm patients and EMTs. A coordinated, flexible, and successful response requires careful planning, training, and use of support technology.
- Use of the National Incident Management System and local Incident Command System, including a Medical Command Sector that includes a RI-licensed EMT and/or physician Medical Control will facilitate the best possible response.

2. KEY POINTS IN ALL MAJOR INCIDENTS

2.1. Approach the scene cautiously from upwind and uphill if possible. Before taking action, fully assess the situation to protect yourself and other responders.

2.2. Secure the scene. Isolate affected areas without entering any immediately hazardous sections.

2.3. Establish an Incident Command System following the National Incident Management System guidelines.

2.4. Establish decontamination, triage, and treatment areas outside the containment area.

2.5. Hazardous areas should be entered only by personnel trained in hazardous materials response and wearing appropriate protective gear.

2.6. Maintain an awareness that major incidents, particularly terrorist-related incidents, may involve more than a single obvious hazard.

3. RECOGNITION

The EMT may encounter a Major Incident in two ways:

- The EMT arrives at a scene and recognizes conditions that fit the Major Incident Protocol. Appropriate procedures should be followed to notify the dispatch network and initiate operations as defined in this protocol.
- The EMT is briefed that the response is to a Major Incident. Hazards, needs, and supervisory assignments have already been determined at the time of response. The EMT should be dispatched to a specific location, such as a staging area or a particular treatment or access area.

4. GENERAL SCENE MANAGEMENT

4.1. Recognition of Major Incident upon arrival at the scene

4.1.1. Assess available resources, operational needs, and characteristics of the situation at each scene.

4.1.2. Use an "all-hazards" approach to Personal Protective Equipment (PPE). Do not enter known or suspected hazardous areas or areas where multiple patients are apparently unconscious or deceased without adequate PPE or other equipment (typically Level A or B). A hazardous materials team should be requested for such situations.

4.1.3. EMTs exposed to hazardous substances presenting an inhalation hazard or potential inhalation hazard shall wear positive pressure SCBA (self-contained breathing apparatus) while engaged in emergency response, until such time that Incident Command determines that a decreased level of respiratory protection will not result in hazardous exposure.

Level C PPE may only be worn under the following conditions:

- While treating/transporting patients who have been adequately decontaminated; ***or***
- Incident Command has evaluated the situation and determined that positive-pressure SCBA (self-contained breathing apparatus) is not required.

4.1.4. If the situation meets Major Incident criteria, declare use of the Major Incident Protocol and request assistance through the dispatch network according to the *Southern New England Emergency Fire Assistance Plan*, including notification of RIEMA and local area hospitals. Increased staffing and capability at dispatch centers and backfill of EMS units should be accomplished to assure adequate response.

4.1.5. **No unit should respond unless dispatched**.

4.1.6. Establish Incident Command structure including a Medical Branch Sector with a RI Licensed EMT and/or Medical Control.

4.1.7. Early attention should be focused on the following:

- Assignment of experienced, senior personnel to lead roles necessary to locate, decontaminate, treat, and transport patients while maintaining safety, supply and support operations.
- Uniform identifiers and standardized credentialing should be used to clarify roles and responsibilities and protect the scene perimeter. Plain language and uniform color codes for marking clothing are encouraged.
- Radio and telephone communications should use plain language and commonly used interoperable communications channels and systems.
- Each person assigned to a leadership role should have an assistant to facilitate communication and documentation.

- Leaders should maintain accountability for all personnel under their supervision.
- Control of the incident scene perimeter, with access allowed only for requested, assigned, and adequately identified personnel.
- See Appendix I for actions and precautions appropriate for the specific hazard(s) at hand.

4.1.8. Avoid further contamination or spread of hazardous materials.

- Level C (or better) PPE is required for assessment and care of patients removed from a hazardous area and possibly contaminated with biologic or chemical agents or radioactive materials. Normally, assessment and care patients should occur only after proper decontamination.
- Ambulatory patients should be instructed to move from a contaminated area to one where decontamination, assessment, and treatment can occur.

4.1.9. If an EMT is exposed, rapidly decontaminate, evaluate, and treat using appropriate procedures. The EMT must don PPE to avoid further contamination. The EMT may continue activities, if possible, once decontaminated, treated and protected.

4.1.10. Triage and treat patients, within capabilities, following existing patient treatment protocols. Categorize and be prepared to report the number of patients as:

- **Red** (Immediate): Life-threatening and critical conditions that cannot be stabilized at the scene given available resources. Require first priority for transport to hospital or designated alternative care site after appropriate decontamination.
- **Yellow** (Urgent): Serious emergencies that can be stabilized at the scene and appropriately decontaminated. Second priority for transport to hospital or designated alternative care site. Could deteriorate to Red if left unattended.
- **Green** / Delayed: Medical problems that can receive delayed treatment or are resolved with on-scene treatment. Includes those with minor injuries or exposures and/or minor contamination whose symptoms resolve with appropriate decontamination. May, after appropriate decontamination and follow-up planning, be released from care at the scene as directed by Incident Command in consultation with Medical Control.
- **Black** / Dead: Dead or dying without hope of recovery despite treatment given available resources. Managed as a last priority after other patients are treated. Deceased persons should not be moved without permission from the Medical Examiner and Incident Command. Contamination and scene investigation issues should be considered in treatment of bodies and/or body parts.

4.1.11. RI DOH-approved tag/tracking identification should be attached to every patient upon initial contact.

4.1.12. Once requested resources arrive, follow the steps outlined below.

4.2. Responding to a known Major Incident

4.2.1. Follow instructions from dispatch and Incident Commander. Refer to Appendix I and DOH-approved resources for situation-specific facts and treatment Protocols. During a major incident, EMTs may be authorized to function in field hospitals, clinics, emergency departments and other health care facilities. EMTs may also be authorized to distribute or administer medications from the MMRS (Metropolitan Medical Response System) cache, CHEMPAK system, or other sources according to situational instructions.

4.2.2. Use proper PPE, following an "all-hazards" approach until specific hazards are identified. If the preliminary site evaluation does not produce sufficient information to identify the hazards or suspected hazards of the site, an ensemble providing the equivalent of Level B (or better) PPE shall be used as minimum protection and direct-reading instruments shall be used by the proper personnel for identifying IDLH (Immediately Dangerous to Life and Health) conditions.

4.2.3. Triage and treat patients following appropriate patient treatment protocols. Medical Control may issue special orders for the incident, including medications, alternate transport destinations, and other care through Incident Command.

4.2.4. Follow existing documentation and communications standards for patients transported to hospitals or other approved treatment sites. RI DOH-approved electronic or paper *RI EMS Ambulance Run Reports* or RI DOH-approved documentation tags/forms should be used to document care of transported patients.

4.2.5. EMTs are released from need to document care of patients they do not personally transport to hospitals or other approved care sites, but triage/tracking tags should be attached to all patients and records kept for incident documentation and debriefing. Documentation of care on a *RI EMS Ambulance Run Reports* or other DOH-approved forms should occur as soon as possible, and must accompany each patient to hospital or other approved care site.

4.2.6. **Ambulances should not be used to transport deceased victims**. Alternate vehicles (trailers, busses, vans, command posts, etc.) may be used to support incident operations for shelter, operations coordination, responder rehabilitation, resupply, and patient transport. All patient transport vehicles must be properly staffed with an EMT or properly qualified personnel.

4.3. Refer to *RI EMS Prehospital Care Protocols Appendix I* and *Rhode Island Mass Casualty Incident Disaster Plan* for fact Sheets, PPE guidelines, and contact information for state and local resources(including the Rhode Island Emergency Mobile Command Post operated by the Rhode Island Emergency Management Agency), and the *Mass Fatality Plan* as provided by the Rhode Island Medical Examiner's Office.

5. AGENT-SPECIFIC PROTOCOLS

5.1. Biological Agents (Anthrax, Smallpox, and Other)

5.1.1. Don appropriate PPE as defined in Appendix I.

5.1.2. Treat patient symptoms according to established protocols.

5.1.3. Contact Medical Control for additional treatment and destination information. The RI DOH smallpox plan calls for use of a smallpox hospital but this facility is **NOT** intended to be a primary receiving point for possible smallpox patients. Interfacility transfers are likely.

5.1.4. Complete documentation for all transported patients on a *RI EMS Ambulance Run Report* or other RI DOH-approved form.

5.1.5. Don appropriate PPE while disinfecting vehicles and equipment with a hazard-appropriate disinfectant (see Appendix I). Place any contaminated materials in properly labeled plastic bags and seal for biohazard disposal.

5.2. Botulinum Toxin

5.2.1. Only properly trained teams in appropriate PPE (see Appendix I) should enter the contaminated area.

5.2.2. Level C PPE is adequate for treating exposed and symptomatic patients **AFTER** decontamination. Level C PPE will be worn only under the following conditions:

- While treating/transporting patients who have been appropriately decontaminated; ***or***
- Incident Command has evaluated the situationand determined that positive pressure SCBA is not required.

5.2.3. Universal precautions are adequate for treating exposed and symptomatic patients **AFTER** decontamination.

5.2.4. Avoid contact with contaminated materials, including food and water.

5.2.5. Decontaminate self and/or partner as indicated using appropriate procedures (see Appendix I).

5.2.6. Treat Patients:

- If necessary, decontaminate patients as soon as possible following appropriate procedures. Decontamination must be performed by personnel trained to at least the Hazardous Materials Operations level and equipped with appropriate PPE (see Appendix I). **Assure fresh air during decontamination**.
- Administer airway support as indicated, following proper Protocols. This may include supplemental oxygen, **ALBUTEROL**, and airway adjuncts such as BVM ventilation, and/or EOA as indicated.
- If indicated, EMTs trained and licensed/certified by the RI Department of Health to perform endotracheal intubation may perform endotracheal intubation (patients >1 month old) following the *Endotracheal Intubation* protocol.
- Administer botulism antitoxin, if available, as directed by Medical Control.

5.3. **Cyanide**

5.3.1. Only properly trained teams in appropriate PPE (see Appendix I) should enter the contaminated area.

5.3.2. Level C PPE is adequate for treating exposed and symptomatic patients **AFTER** decontamination. Level C PPE will be worn only under the following conditions:

- While treating/transporting patients who have been appropriately decontaminated; ***or***
- Incident Command has evaluated the situation and determined that positive pressure SCBA is not required.

5.3.3. Avoid contact with contaminated materials, including food and water.

5.3.4. Decontaminate self and/or partner using appropriate procedures (see App. I).

5.3.5. Treat Patients:

- Decontaminate patients as soon as possible following appropriate procedures. Decontamination must be performed by personnel trained to at least the Hazardous Materials Operations level and equipped with appropriate PPE (see Appendix I). **Assure fresh air during decontamination**.
- Administer airway support as indicated, following proper protocols. This may include supplemental oxygen, **ALBUTEROL**, and airway adjuncts such as BVM ventilation, and/or EOA as indicated.

- If indicated, EMTs trained and licensed/certified by the RI Department of Health to perform endotracheal intubation may perform endotracheal intubation (patients >1 month old) following the *Endotracheal Intubation* protocol.
- ***[ALS PERSONNEL]:*** Start an IV of **NORMAL SALINE** or **LACTATED RINGERS** solution:

  -  Pediatric patients < 5 feet tall (<35 kg / 75 lbs): Administer **NORMAL SALINE** or **LACTATED RINGERS** solution at KVO (10-20 mL/hour) or administer boluses of 20 mL/kg over 5-10 minutes for patients in shock.
  - Adult patients: Administer **NORMAL SALINE** or **LACTETED RINGERS** solution at a KVO (~20 mL/hour).
  - If unable to establish an IV in 2 attempts or 5 minutes transport the patient to a designated hospital emergency facility or other approved care site. Any further attempt at IV placement must occur en route.
- ***[ALS PERSONNEL]:*** Administer antidotes from cyanide antidote kit if available, following instructions in the kit. Focus on administration of IV antidotes, starting with **SODIUM NITRITE** (0.33 mL/kg of 3% solution slow IV push, not to exceed 10 mL). This may produce hypotension. In consultation with Medical Control, reduce dose if patient is anemic or has a history of cardiovascular disease.
- Transport to designated hospital emergency facility or other approved care site.

5.4. Blistering Agents (Lewisite)

5.4.1. Only properly trained teams in appropriate PPE (see Appendix I) should enter the contaminated area.

5.4.2. Level C PPE may be worn only after Incident Command has evaluated the situation and determined that positive-pressure SCBA is not required.

5.4.3. Universal precautions are adequate for treating exposed and symptomatic patients **AFTER** decontamination.

5.4.4. Avoid contact with contaminated materials, including food and water.

5.4.5. Decontaminate self and/or partner as indicated using appropriate procedures (see Appendix I).

5.4.6. Treat self and/or partner if symptomatic.

5.4.7. Treat Patients:

- Decontaminate patients as soon as possible following appropriate procedures. Decontamination procedures must be performed by personnel trained to at least the Hazardous Materials Operations level and equipped with appropriate PPE (see Appendix I). **Assure fresh air during decontamination**.
- Administer airway support as indicated, following proper Protocols. This may include supplemental oxygen, **ALBUTEROL**, and airway adjuncts such as BVM ventilation, and/or EOA as indicated.
- If indicated, EMTs trained and licensed/certified by the RI Department of Health to perform endotracheal intubation may perform endotracheal intubation (patients >1 month old) following the *Endotracheal Intubation* protocol.
- If the patient has signs of shock or respiratory distress administer **British Anti-Lewisite (BAL)**, if available, 3-5mg/kg IM. (**Do not administer BAL IV**.)

5.5. **Nerve Agents**

5.5.1. Don appropriate PPE (see Appendix I) and evacuate contaminated area if inhalation exposure is suspected.

5.5.2. Only properly trained teams utilizing appropriate PPE (see Appendix I) should enter the contaminated area.

5.5.3. Level C PPE is adequate for treating exposed and symptomatic patients **AFTER** decontamination. Level C PPE may be worn only under the following conditions:

- While treating/transporting patients who have been appropriately decontaminated; ***or***
- Incident Command has evaluated the situation and determined that positive pressure SCBA is not required.

5.5.4. Avoid contact with contaminated materials, including food and water.

5.5.5. Decontaminate self and/or partner as indicated following appropriate procedures (see Appendix I).

5.5.6. Treat self and/or partner if symptomatic.

5.5.7. Consider activation of CHEMPAK program through Incident Command.

5.5.8. Treat Patients:

- Decontaminate patients as soon as possible following appropriate procedures. Decontamination must be performed by personnel trained to at least the Hazardous Materials Operations level and equipped with appropriate PPE (see Appendix I). **Assure fresh air during decontamination.**
- Administer airway support as indicated, following proper protocols. This may include supplemental oxygen, **ALBUTEROL**, and airway adjuncts such as BVM ventilation, and/or EOA as indicated.
- If indicated, EMTs trained and licensed/certified by the RI Department of Health to perform endotracheal intubation may perform endotracheal intubation (patients >1 month old) following the *Endotracheal Intubation* protocol.
- Administer nerve agent antidotes as follows:

  All symptomatic patients over 15kg/5 years of age:

  - **ATROPINE**, 2mg IM (by MK-1 Autoinjector or by syringe and needle). For mild to moderate cases, repeat every 5 minutes if symptoms are not improved, to a maximum of 3 doses (6mg). In severe cases (seizures, respiratory distress requiring BVM support) the treatment may be repeated every 3 minutes to a maximum of 10 doses (20mg).
  - **2-PAM** (Pralidoxime Chloride) 600mg IM (by MK-1 Autoinjector or by syringe and needle). For mild to moderate cases, repeat after 1 hour if symptoms are not improved. For severe cases (seizures, respiratory distress requiring BVM support), repeat every 5 minutes to a maximum of 3 doses (1800mg).
  - ***[ALS PERSONNEL]:*** **MIDAZOLAM** (Versed®) 2.5mg IM or IV should be administered to all patients with seizures, respiratory distress requiring BVM support, or other signs of severe effects. The dose may be repeated every 15 minutes as needed to control seizures to a maximum of 3 doses (7.5mg).
- Transport decontaminated patient(s) to a designated receiving facility (may not necessarily be a hospital emergency department during a declared major incident). Notify receiving facility as instructed by Incident Command. Medical Control consultation should be sought for severe cases or if patient condition is worsening.
- Document all incident information for transported patients by completing the *RI EMS Ambulance Run Report* or other DOH-approved form.

5.6. **Phosgene/Choking Agent**

5.6.1. Don appropriate PPE (see Appendix I) and evacuate contaminated area(s) if inhalation exposure is suspected.

5.6.2. Only properly trained teams in appropriate PPE (see Appendix I) should enter the contaminated area.

5.6.3. Level C PPE is adequate for treating exposed and symptomatic patients **AFTER** decontamination. Level C PPE may be worn only under the following conditions:

- While treating/transporting patients who have been appropriately decontaminated; ***or***
- Incident Command has evaluated the situation and determined that positive pressure SCBA is not required.

5.6.4. Avoid contact with contaminated materials.

5.6.5. Decontaminate self and/or partner as appropriate (see Appendix I).

5.6.6. Treat self and/or partner if symptomatic.

5.6.7. Treat patients:

- Decontaminate patients as soon as possible following appropriate procedures. Decontamination must be performed by personnel trained to at least the Hazardous Materials Operations level and equipped with appropriate PPE. (see Appendix I). **Assure fresh air during decontamination**.
- Administer airway support as indicated, following proper Protocols. This may include supplemental oxygen, **ALBUTEROL**, and airway adjuncts such as BVM ventilation, and/or EOA as indicated.
- If indicated, EMTs trained and licensed/certified by the RI Department of Health to perform endotracheal intubation may perform endotracheal intubation (patients >1 month old) following the *Endotracheal Intubation* protocol.
- Transport decontaminated patient(s) to a designated care facility (may not necessarily be a hospital emergency department during a declared major incident situation). Notify receiving facility as instructed by Incident Command. Medical Control consultation should be sought for severe cases or if patient condition is worsening.
- Document all incident information for transported patients by completing the *RI EMS Ambulance Run Report* or other DOH-approved form.

5.7. Radiation Exposure

5.7.1. Don appropriate PPE (see Appendix I) and evacuate contaminated area(s). Move victims away from the radiation source as soon as possible.

5.7.2. Request and obtain equipment and resources necessary to measure the level of radiation and identify sources present at the scene. Shorter time, greater distance, and better shielding are the best protection against radiation exposure.

5.7.3. Level C PPE is the minimum level to be used after Incident Command has evaluated the situation and determined that positive pressure SCBA is not required.

5.7.4. After decontamination (if needed), victims should be treated according to the proper *RI EMS Prehospital Care Protocols*.

- Decontaminate patients, partner, and/or self as soon as possible to remove potentially radioactive dust, ash, and other contaminants. Decontamination procedures must be performed by personnel trained to at least the Hazardous Materials Operations level and equipped with appropriate PPE (see Appendix I).
- Victims with embedded radioactive foreign bodies should be discussed with Medical Control to minimize risk/exposure to the EMT and hospital staff.
- Transport symptomatic, decontaminated patient(s) to a designated care facility (may not necessarily be a hospital emergency department during a declared major incident). Notify receiving facility as instructed by Incident Command. Medical Control consultation should be sought for severe cases or if patient condition is worsening.
- Document all incident information for transported patients by completing the *RI EMS Ambulance Run Report* or other DOH-approved form.

5.8. Ricin

5.8.1. Only properly trained teams utilizing appropriate PPE (see Appendix I) should enter the contaminated area.

5.8.2. Level C PPE may be worn only after Incident Command has evaluated the situation and determined that positive-pressure SCBA is not required.

5.8.3. Universal precautions are adequate for treating exposed and symptomatic patients **AFTER** decontamination.

5.8.4. Decontaminate patients, partner, and/or self following appropriate procedures (see Appendix I).

5.8.5. If injection exposure is suspected, protect the injection site and identify it to hospital personnel for possible surgical removal.

5.8.6. Treat symptoms according to appropriate *RI EMS Prehospital Care Protocols*.

5.8.7. Transport to nearest hospital emergency facility.

5.9. Riot Control Agents

5.9.1. Assure a safe patient treatment environment. Enlist police support for victims in custody and/or with violent behavior.

5.9.2. Only properly trained teams utilizing appropriate PPE (see Appendix I) should enter the contaminated area.

5.9.3. Level C PPE may be worn only after Incident Command has evaluated the situation and determined that positive-pressure SCBA is not required.

5.9.4. Decontaminate partner and/or self as indicated.

5.9.5. Treat patients:

- Decontaminate patients as soon as possible following appropriate procedures (see Appendix I). Decontamination procedures must be performed by personnel trained to at least the Hazardous Materials Operations level and equipped with appropriate PPE.
- Irrigate with a stream of cool water or milk (unless allergic), flushing so that the stream runs away from the symptom area (typically eyes).
- Treat other symptoms according to appropriate *RI EMS Prehospital Care Protocols*.
- Transport victims to the nearest hospital emergency facility.

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Medical Control at the Emergency Scene

1. Control of a medical emergency scene is the responsibility of the individual in attendance who is most appropriately trained and knowledgeable in providing prehospital emergency stabilization and transport.

2. If the patient's private physician is present and assumes responsibility for the patient's care:

   The EMT should defer to the orders of the private physician. Local medical control should be contacted. The EMT reverts to following prehospital protocols and on-line medical direction at any time when the patient's private physician is no longer in attendance.

3. If a physician is present who is not the patient's physician and on-line medical direction by radio contact cannot be established:

   An EMT on an emergency scene should relinquish responsibility for patient management when the physician has identified himself and has demonstrated his willingness to assume responsibility and document his intervention. When these conditions exist, the EMT should defer to the wishes of the physician on the scene. If the treatment at the emergency scene differs from that outlined in the prehospital protocols, the physician should agree in advance to accompany the patient to the hospital. However, in the event of a mass casualty incident or disaster, patient care needs may require the physician to remain at the scene.

4. If a physician is present who is not the patient's physician and on-line medical direction by radio contact does exist:

   The on-line physician is ultimately responsible. If there is any disagreement between the physician at the scene and the on-line physician, the EMT should take orders from the on-line physician and place the intervenor physician in radio contact with the on-line physician.

   The on-line physician has the option of managing the case entirely, working with the physician, or allowing him to assume responsibility.

5. Document all incident information by completing the *RI EMS Ambulance Run Report.*

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Nasogastric/Orogastric Tube [EMT-Ps only]

1. Indications:
   - 1.1 impaired consciousness
   - 1.2 poisoning/overdose
   - 1.3 respiratory and cardiorespiratory arrest
   - 1.4 as ordered by Medical Control.
2. Contraindications to use of nasogastric tube: significant trauma to the head or face; suspected basilar skull fracture.
3. Procedure:
   - 3.1 Lubricate the distal tip of an appropriately-sized nasogastric/orogastric tube.
   - 3.2 Coach conscious patients to swallow as the tube is advanced to the stomach.
   - 3.3 Verify placement by auscultating the epigastrium, while injecting 15–30 mL of air into the tube.
   - 3.4 Stabilize and secure the tube.
   - 3.5 Withdraw and save a sample of gastric aspirate for analysis.
4. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report*.

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Pleural Decompression [*EMT-Ps only*]

1. Indication: pleural decompression may be performed with authorization from Medical Control, and as a standing order if unable to contact Medical Control, for a patient with a suspected tension pneumothorax.
2. Procedure for needle thoracostomy:
   - 2.1 Locate the appropriate site for decompressing the affected hemithorax:
     - 2.1.1 the second or third intercostal space in the mid-clavicular line; or
     - 2.1.2 the fourth or fifth intercostal space in the mid-axillary line
   - 2.2 Prepare the site with an antiseptic solution, using aseptic or sterile technique.
   - 2.3 Connect a 10 mL syringe to a large bore, over-the-needle catheter placement unit.
   - 2.4 Stabilize the site. While applying gentle suction to the syringe, insert the needle over the superior border of the rib perpendicular to the chest wall, and puncture the skin.
   - 2.5 Advance the needle while applying gentle suction to the syringe. Confirm entry into the pleural space by aspirating air. Advance the catheter while withdrawing the needle.
   - 2.6 Confirm placement by observing clinical improvements.
   - 2.7 Fit a stopcock/syringe assembly or flutter valve to the hub of the catheter.
   - 2.8 Stabilize and secure the cannulating device.
3. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report*.

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Pneumatic Anti-Shock Garment (PASG)

1. Indications for use of the PASG:
   - 1.1 Hypotension due to ruptured abdominal aortic aneurysm or similar abdominal hemorrhage
   - 1.2 Hypotension due to suspected pelvic fracture
   - 1.3 Anaphylactic shock
   - 1.4 Otherwise uncontrollable lower extremity hemorrhage
   - 1.5 Severe traumatic hypotension (shock) when the transportation time to a *HOSPITAL EMERGENCY FACILITY* is longer than five (5) minutes. For other patients, or in situations in which there is any cause for doubt, the EMT should contact Medical Control prior to inflation of the garment. **Do not delay transport to apply the garment.**

2. When used for shock, the garment should be inflated to produce a systolic blood pressure that exceeds the age-related hypotensive values shown in the table below:

Abnormal Vital Signs

Age		Systolic BP	
			NOTE:
Pre-School	(1–6 years)	**<75**	absent radial
School Age	(6–12 years)	**<85**	pulse may
Adolescent	(12–16 years)	**<90**	indicate
Adult	(≥16 years)	**<90**	hypotension

3. In most circumstances, the Pneumatic Anti-Shock Garment should be deflated slowly and only with an order from Medical Control. Deflation should occur while monitoring the blood pressure to insure that the blood pressure continues to be greater than the age-related value for hypotension.
   - 3.1 If evidence of pulmonary edema develops after inflation, deflate the garment immediately without requesting Medical Control authorization.

4. Contraindications to use of the PASG:
   - 4.1 Adjunct to CPR
   - 4.2 Penetrating chest injury
   - 4.3 Pulmonary edema
   - 4.4 Isolated extremity injury or fracture without shock
   - 4.5 Acute myocardial infarction, cardiac tamponade or cardiogenic shock
   - 4.6 Pregnancy

5. In other situations, if use is considered, contact Medical Control.

6. Inflation Procedure:
   - 6.1 Assess patient for shock and record sign/symptoms. If spinal injury is suspected, maintain spinal immobilization.
   - 6.2 Determine the patient's blood pressure by palpation or auscultation.
   - 6.3 Auscultate breath sounds.
   - 6.4 Check patient for bulky/sharp objects in pockets or remove clothing from patient's abdomen and lower extremities.
   - 6.5 Open trouser and arrange garment.
   - 6.6 Apply garment:
     - 6.6.1 Log roll patient, maintaining spinal immobilization.
     - 6.6.2 Locate the superior edge of garment just below the lower margin of the ribs.
     - 6.6.3 Attach the Velcro® straps with maximum contact, in order to fasten the garment securely.
     - 6.6.4 Attach inflation pump lines to garment and open all in-line valves.
   - 6.7 Inflate garment as follows:
     - 6.7.1 When used as indicated, inflate all compartments simultaneously to produce a level of consciousness and/or vital signs that are within normal limits, as identified in the following table, or until fully inflated per garment specifications.

Normal Vital Signs

Age		Respiratory Rate	Heart Rate	Systolic BP	
					NOTE:
Pre-School	(1–6 years)	16–40	70–160	>75	absent radial
School Age	(6–12 years)	12–30	60–140	>85	pulse may
Adolescent	(12–16 years)	10–24	60–120	>90	indicate
Adult	(≥16 years)	10–24	60–120	>90	hypotension

   - 6.8 Close all in-line valves.
   - 6.9 Frequently reassess and record blood pressure, pulse, breath sounds, respiratory rate, and patient's level of consciousness, while en route to a *HOSPITAL EMERGENCY FACILITY.*

7. Deflation Procedure:
   - 7.1 Assess and record patient's vital signs.
   - 7.2 Slowly deflate the abdominal segment while monitoring the blood pressure to insure that the blood pressure continues to be greater than the age-related value for hypotension.
   - 7.3 After abdominal deflation is achieved, gradually deflate **both legs** while monitoring the blood pressure to insure that the blood pressure continues to be greater than the age-related value for hypotension.

8. Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report.*

PREHOSPITAL STROKE SCALE

ASSESSMENT	NORMAL FINDING(S)	ABNORMAL FINDING(S)
Facial Droop (ask patient to smile or show teeth)	Both sides of the face move equally well.	One side of the face does not move as well as the other
Arm Drift (ask the patient to close eyes and hold arms straight out for 10 seconds)	Both arms move the same or both arms do not move at all.	One arm does not move or one arm drifts down.
Speech (ask the patient to say " you can't teach an old dog new tricks")	Patient uses correct words with no slurring.	Patient slurs words, uses the wrong words, or is unable to speak.
Vision (ask the patient to read your name tag with one eye at a time)	Patient is able to read equally well with both eyes.	Patient is unable to read with one eye or it is blurry.
Coordination (ask the patient to place their index finger from their nose to the examiners finger, held at a distance of 12-18". Test one side, then the other)	Patient is able to complete the task as indicated	Patient is unable to complete the task as indicated.

Note: Abnormality in <u>any one</u> assessment area is strongly suggestive of stroke.

Some patients with stroke symptoms may benefit from medications administered at the hospital within a few hours of symptom onset.

Recognition:

Unilateral paralysis:	Weakness, clumsiness or heaviness, usually involving one side of the body.
Unilateral numbness:	Sensory loss, tingling or abnormal sensation, usually involving one side of the body.
Language Disturbance:	Trouble understanding or speaking (aphasia) or slurred speech (dysarthia).
Monocular blindness:	Painless visual loss in one eye often described as a curtain dropping.
Vertigo:	Sense of spinning or whirling that persists at rest.
Ataxia:	Poor balance, stumbling gait, staggering, or incoordination of one side of the body.

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Telephone Reference

AIR AMBULANCE (Helicopter)

Air Ambulance Service	**Telephone**
Life Flight UMASS-Memorial (Worcester, Massachusetts)	1-800-343-4354
Life Star (Hartford and Norwich, Connecticut)	1-800-221-2569
Med Flight (Bedford and Plymouth, Massachusetts)	1-800-233-8998

HOSPITAL EMERGENCY DEPARTMENTS

HOSPITAL	***NOTIFICATION***	***MEDICAL CONTROL***
Butler Hospital	401-455-6215	-N/A-
Hasbro Children's Hospital	401-444-6874	401-444-6874
Kent County Memorial Hospital	401-736-4288	401-737-3320
Landmark Medical Center - Woonsocket	401-769-1125	401-769-1125
Memorial Hospital	401-729-2191	401-729-2191
Miriam Hospital	401-413-8267 401-793-3333 (backup)	401-274-3333
Newport Hospital	401-845-1120	401-845-1211
Rhode Island Hospital	401-444-4220	401-444-5731
Roger Williams Medical Center	401-456-2132	401-456-2132
St. Joseph Hospital – Fatima Unit	401-456-3418	401-456-3402
South County Hospital	401-782-8010	401-782-8010
Veteran's Administration Hospital	401-457-3050	401-457-3050
Westerly Hospital	401-348-3325	401-348-3325
Women & Infants Hospital	401-453-7605	401-453-7605

OTHER AGENCIES

Diver's Alert Network (D·A·N)	919-684-8111
Emergency Number	919-684-2948
Regional Center for Poison Control & Prevention (Boston)	800-222-1222
Rape Crisis Center	401-421-4100 (24 hours)
Rhode Island Critical Incident Stress Management Team	401-763-2778 (pager)
Rhode Island Department of Health	401-222-2231
Division of Emergency Medical Services	401-222-2401
After hours, weekends, and holidays	401-272-5952
Rhode Island Emergency Management Agency	401-946-9996 (24 hours)
Rhode Island Medical Examiner's Office	401-222-5500 (8:30 – 4:30)
After hours, weekends, and holidays	401-222-2948
Rhode Island State Police	401-444-1111 (24 hours)
US Naval Ambulatory Care Center – Newport	401-841-3771
US Coast Guard-SAR (Castle Hill)	401-846-3675
SAR (Pt. Judith)	401-789-0444

Telephone Reference

RHODE ISLAND MUTUAL AID PLAN
REGIONAL CONTROL CENTERS
POC

NORTHERN CONTROL

Smithfield Fire Department
401-949-1233
Alt: N. Smithfield Fire Department
401-762-1414

SOUTHERN CONTROL

Exeter Emergency Dispatch
401-294-2233
Alt: Westerly Emergency Dispatch
401-539-2211

METRO CONTROL

Cranston Fire Department
401-461-5000
Alt: Providence Fire Department
401-274-3344
2nd Alt: Warwick Fire Department
401-468-4005

EAST BAY CONTROL

Portsmouth Fire Department
401-683-1155
Alt: Newport Fire Department
401- 846-2211

Revised Trauma Score (Adult)

Component	Method	Values	Score
Respiratory Rate	Count respirations in 15 seconds, then multiply by 4.	10–24 = 4 25–35 = 3 ≥36 = 2 1–9 = 1 none = 0	
Systolic Blood Pressure	Measure systolic BP with stethoscope or by palpation.	≥90 = 4 70–89 = 3 50–69 = 2 1–49 = 1 no pulse = 0	

Glasgow Coma Scale

Obtain sub-scores for each assessment (Eyes, Verbal, Motor). Total these sub-scores, then convert the sum as indicated.

EYES

4 Eyes open **spontaneously** during initial assessment.
3 Eyes open **to verbal command** or speech.
2 Eyes open only **to painful stimulus.**
1 Eyes **do not open** during initial evaluation period.

VERBAL

5 Patient is **oriented** to person, place, time; converses.
4 Patient converses, but is **disoriented** or **confused.**
3 Patient is **disoriented**; speech clear, but inappropriate.
2 Speech is **garbled.** Includes grunting or moaning.
1 **No verbal responses** to any stimulation.

MOTOR

6 **Obeys** verbal commands by moving extremities or facial muscles (if C-spine injuries).
5 Can **localize** a painful stimulus by moving an extremity to an injured area in a purposeful manner.
4 **Withdraws** an extremity from painful stimulus, but unable to localize/prevent recurring pain.
3 Abnormal **flexor response** to painful stimulus, ie: decorticate (flexion) posturing.
2 Abnormal **extensor response** to painful stimulus, ie: decerebrate (extension) posturing.
1 **No response**, no motion to any painful stimulus.

Sum of three sections (**EYES + VERBAL + MOTOR**) →

Conversion

Sum		*Conversion*
13–15	=	4
9–12	=	3
6–8	=	2
4–5	=	1
<4	=	0

Converted Score →

Revised Trauma Score: →
Sum of RR + BP + converted Glasgow Coma scores

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Trauma Score (Pediatric)

Component	+2 points	+ 1 point	- 1 point	Score
Weight	>20 kg	10–20 kg	<10 kg	
Airway	open/no assist	assist needed	intubated	
Systolic BP	>90 mm Hg (+ radial pulse)	50–90 mm Hg (+ femoral/carotid)	<50 mm Hg (no palpable pulse)	
Consciousness	awake, alert	obtunded	unresponsive	
Fractures	none	closed fracture	multiple or open	
Wounds	none	minor wounds	major/penetrating	
			TOTAL:	

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Management of Patient Subdued by Taser®

Introduction

State and local police departments may use a conductive energy weapon called a Taser®. The Taser is designed to restrain violent/potentially violent individuals when alternative restraint tactics have failed or are reasonably likely to fail and/or where it would be unsafe for law enforcement officers to approach a subject to apply restraints. When used, the Taser® discharges a thin, insulated, high-voltage wire(s), that at the distal end contains arrow-like barbed projectiles (probes) that penetrate the subject's skin and embed themselves, resulting in a short incapacitating electric shock to be administered. Depending on the agency, law enforcement officers may initiate an EMS response when the device is discharged on a suspect.

▼ ALL EMTS:

1. Ensure the officer has disconnected the wires from the hand held unit before contact with patient.

2. Confer with the officer and determine the patient's condition prior to the Taser's deployment. Further, determine the patient's condition from the time of the Taser discharge until EMS arrival. Any report of extreme irrational behavior prior to the tasing is significant, regardless of the patient's current presentation.

3. Initiate routine patient care per the *Standard Management of all Patients Protocol*.

   3.1 "Tased" patients may fall without the ability to protect themselves. Beware of head, neck and musculoskeletal injuries. Consider immobilization with cervical collar and spine board.

3.2 Consider that children may be more susceptible to nerve or muscle damage from a Taser® due to their smaller size.

   3.3 Consider the potential for fetal trauma if the patient is pregnant.

4. Obtain history from the patient including the date of last tetanus shot and any cardiac history.

5. Identify location of probes on the patient's body.

6. Cut the wires no closer than 12" from the patient.

7. Do not remove the probes from the patient's body. Consider the probe an impaled object that should be left in place. Pad and secure as needed.

8. Probes that have been removed should be handled and disposed of like contaminated sharps in a designated sharp container.

9. Clean puncture sites and bandage.

10. Follow all appropriate RI EMS Prehospital Care Protocols and Standing Orders to identify and treat life-threatening and critical conditions.

11. Contact Medical Control.

12. Transport the patient without delay to a HOSPITAL EMERGENCY FACILITY.

13. Document all incident information by completing the RI EMS Ambulance Run Report.

▼ ALS PERSONNEL:

14. Place the patient on a cardiac monitor. Observe and record the initial ECG rhythm, and any rhythm changes. Attach a copy of the initial rhythm strip to the hospital copy of the RI EMS Ambulance Run Report.

15. Start an IV access device or at least one IV of **Normal Saline** or **Lactated Ringer's** solution to run at KVO rate (~20ml) :

    15.1 If unable to establish IV in 2 attempts or 5 minutes, transport the patient to a *HOSPITAL EMERGENCY FACILITY*. Any further attempt at IV placement must occur en route.

16. If there is evidence of shock, follow the *Shock Protocol*.

17. Consider pain management if necessary and appropriate following the *Pain Management and Sedation Protocol*.

MISCELLANEOUS INFORMATION:

18. Electrical outputs of the Taser® fall within safe levels defined by international standards. There is no increased risk to patients with either pacemakers or implantable defibrillators.

19. The Taser® has the ability to ignite flammable liquids or vapors. Beware of environments where flammables are obviously present.

APPENDIX I

RHODE ISLAND
EMERGENCY MEDICAL SERVICES

MAJOR INCIDENT
FACT SHEETS

STATE OF RHODE ISLAND
AND PROVIDENCE PLANTATIONS
PREHOSPITAL CARE PROTOCOLS
AND STANDING ORDERS

March 2008

TABLE OF CONTENTS

BIOLOGIC AGENTS: SMALLPOX

Overview

- A viral illness causing a rash. The virus is called *variola.*
- About 30% of smallpox patients die.
- Considered eradicated except for laboratory stockpiles, but may also be in the hands of terrorists.
- May be used as a WMD agent.
- Can be prevented with a vaccine. The vaccine, *vaccinia,* is a live virus similar to but not the same as smallpox. Adverse effects from the vaccine can be reduced through screening questions and local care of the vaccine site. The vaccine cannot cause smallpox.
- Immunity decreases with time, so individuals immunized in the past may need to be immunized again.

Transmission

- Highly infectious, highly communicable (easily spread person-to-person).
- May be disbursed as an aerosol mist.
- Also transmitted person-to-person by:
  - Prolonged face-to-face contact;
  - Contact with infected body fluids or contaminated objects such as bedding or clothing;
  - Inhalation or ingestion of airborne droplets (rare).
- Not known to be transmitted by animals or insects.

Symptoms and Course

- Incubation period 7-17 days.
- Fever, aches and vomiting 2-4 days.
- Rash, beginning in mouth and on face, spreading to whole body in 24 hours. This is the most contagious phase, and rash may not be visible except in mouth. 2-4 days.
- Rash begins as red spots, developing into pus-filled pustules (pox) 5-10 days.
- Pustules form a crust, then scab. 5-7 days.

EMS Issues

- Recognized through characteristic rash and symptoms, or by laboratory confirmation and reporting.
- Already contagious when symptoms are non-specific, rash is in mouth only, and diagnosis not made.
- Treatment is entirely supportive.
- RI plan includes a smallpox specialty hospital; interfacility transfers are likely.
- Vaccine can cause adverse reactions. Keep vaccine site covered with a bandage.
- Screening required before vaccination.

Protective Measures

- Patient isolation/quarantine.
- Respiratory and secretion precautions: gloves, gown (tied at wrists), goggles, mask (N95 or better).

Decontamination

- Effective disinfectants include: 1% bleach; 1% peracetic acid; formaldehyde; ethylene oxide; radiation.
- Decontaminate equipment by: steam or gas sterilization; chemical disinfectant; or incineration.

Further Information

- http://www.bt.cdc.gov/agent/smallpox/basics/index.asp

BIOLOGIC AGENTS: ANTHRAX

Overview

- An acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis*.
- Commonly occurs in hoofed mammals but can also infect humans.
- Large stockpiles of anthrax have been weaponized in several countries.
- Can be used as a terrorist weapon through distribution of the spores.
- Anthrax spores are hardy. They can survive for years in soil and on surfaces.

Transmission

- Disbursed as a fine, dry, white or off-white powder.
- Highly infectious but not communicable (cannot be transmitted person-to-person)
- Three serious routes of transmission to humans are:
  - Inhalation of anthrax spores, causing a lung infection.
  - Ingestion of contaminated food, causing an intestinal infection.(Undercooked or raw meat or dairy products from infected animals can cause anthrax.)
  - Absorption of contaminated material, causing skin (cutaneous) infection.

Symptoms and Course

- Inhalation
  - Incubation period typically <1 week, but may be weeks to 2 months.
  - May resemble a cold for 2-3 days.
  - Progresses to severe shortness of breath and shock, often leading to death within 2-3 days of severe symptom onset.
- Intestinal
  - Nausea and vomiting, fever, loss of appetite for 1 to 3 days.
  - Abdominal pain, vomiting blood, severe diarrhea follow.
- Cutaneous
  - Begins as a papule or blister within a day of contact.
  - Progresses to grouped vesicles, then a black eschar surrounded by edema within 7-10 days.
  - Usually not painful.

- Without treatment, can progress to septicemia and death in about 20% of cases.
- With treatment, fatality is rare.

EMS Issues

- Recognized through awareness of exposure, laboratory confirmation of cases. Anthrax is rapidly lethal (1-2 days) in domestic cats. This may serve to warn of a widespread attack prior to human symptoms.
- Licensed vaccine available for those considered to be at risk. Initial series administered at 0, 2, 4 weeks, boosters at 6, 12, 18 months and annual booster.
- Prophylaxis for known or imminent exposure with oral ciprofloxacin (500mg po bid) or doxycycline (100mg po bid). Continue antibiotics for 4 weeks while beginning vaccination series if exposure confirmed, or withdraw antibiotics under medical supervision if exposure doubtful.

Protective Measures

- Respiratory and secretion precautions: gloves, gown (tied at wrists), goggles, respirator.

Decontamination

- Decontaminate equipment with sporicidal agent such as iodine or 0.5% sodium hypochlorite (bleach).

Further Information

- http://www.bt.cdc.gov/agent/anthrax/anthrax-hcp-factsheet.asp

OTHER BIOLOGIC AGENTS

Other bacterial or viral infections may occur in epidemic form or through terrorist attack. These may include influenza, meningitis, cholera, plague, Q fever, salmonella, staphylococcal enterotoxin B, and others. These agents, in general, can be treated similarly. When and if such an event is identified, specific information will be promulgated from DOH.

NOTE: Botulinum toxin is a poisonous substance produced by a bacterium,*Clostridium botulinum*, but is discussed with chemical agents since it is a toxin, not an infection (in most cases), that causes rapid paralysis and respiratory failure that may be confused with a nerve agent. Similarly, ricin is often considered a biological agent but is discussed here as a chemical agent since it too is a toxin, not an infection.

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CHEMICAL AGENTS: NERVE AGENTS/ORGANOPHOSPHATES

Background

Various chemicals, known as nerve agents, can cause symptoms and death within seconds to hours after exposure. These chemicals are similar to organophosphate insecticides but more potent. They block the activity of an enzyme (acetylcholinesterase) that controls the neurotransmitter acetylcholine. The result is over-stimulation of muscles and secretory glands. This over-stimulation leads to symptoms such as muscle twitching or seizures, runny nose, salivation, tearing (lacrimation), sweating, airway constriction (wheezing), small pupils (miosis), diarrhea, urination, and other symptoms, leading to death in some cases if untreated. Contact can be from breathing vapor, absorption of liquid through skin or mucous membranes, or by eating contaminated food or water.

Recognition

- Known or reported exposure of patients to nerve agent, including Sarin (GB), Tabun (GA), Soman (GD), GF, VX, BX, Parathion, Sevin, Malathion, or other organophosphate insecticides.
- Patient or reported patient with symptoms of nerve agent exposure including:
    - Dim or dull vision, pupil constriction, tearing;
    - Chest tightness, wheezing or dyspnea, respiratory arrest;
    - Upper airway secretions, runny nose, salivation;
    - Sweating;
    - Nausea, vomiting, diarrhea, uncontrolled urination and/or defecation;
    - Muscle weakness, twitching, collapse, flaccid muscles, seizure;
    - Respiratory and/or cardiac arrest.
- Patients may have some or all of these symptoms, and severity may range from mild to severe. Judge severity of exposure based on: speed of onset (short contact-to-symptom time more severe); progression of symptoms (more or worse symptoms over time more severe); and type of symptoms (respiratory, seizure more severe).

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CHEMICAL AGENTS: SARIN

Overview

- Man-made chemical warfare nerve agent.
- Also called GB.
- Clear, colorless, tasteless, and odorless in pure form.
- Will persist in soil for 2 to 24 hours at 41-77°F.
- Most volatile of the nerve agents, so it evaporates more rapidly than others.
- Will dissolve easily in water, making water and food contamination possible.
- May produce hydrogen gas (explosion hazard) when vapors react with metals or concrete.

Transmission

- Primarily a vapor hazard, may be sprayed as a liquid or evaporated and disbursed as a vapor (vapor is heavier than air).
- Normally inhaled or absorbed through skin and mucous membranes. May also be ingested.
- Human-to-human spread is possible only if one is contaminated with liquid.

Symptoms and Course

- Liquid on skin:
  - Very small drop – sweating and twitching at site in minutes to hours.
  - Small drop – nausea, vomiting, diarrhea in minutes to hours.
  - Large drop – convulsions, flaccid paralysis, breathing stops within minutes.
- Inhaled vapor:
  - Small amount – small pupils, runny nose, increased salivation, shortness of breath, tightness in chest, cough within seconds.
  - Large amount – loss of consciousness, convulsions, flaccid paralysis, breathing stops, heart stops within seconds to 1 minute.

EMS Issues

- Recognized through symptoms, clusters of affected patients, or report after testing.
- Only a slight difference between a fatal dose and a dose that produces more mild health effects.
- Treatment is mostly supportive.
- Atropine and Pralidoxime (2-PAM) may reverse effects.

Protective Measures

- PPE at Level B or better is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present.
- PPE at Level C or above necessary to treat victims who have been decontaminated. Chemical-resistant gloves are mandatory for any contact with exposed skin or clothing.

Decontamination

- Decontamination for those not wet with liquid (inhaled vapor only) consists of fresh air, removal of contaminated clothing, and washing hair with high-volume, low-pressure water. Soap and water speeds this process. Clothing exposed to sarin vapor can continue to release sarin for about 30 minutes.
- Decontamination for those wet with liquid consists of complete removal of clothing and washing victims with household bleach and copious amounts of water.
- Decontaminate equipment with diluted alkali solution, steam and ammonia, or bleach solution.

Further Information

- Centers for Disease Control and Prevention Public Response Hotline (CDC)
  English (888) 246-2675
  Español (888) 246-2857
  TTY (866) 874-2646
- Agency for Toxic Substances and Disease Registry (ATSDR) (1-888-422-8737)

CHEMICAL AGENTS: VX

Overview

- Nerve chemical warfare agent.
- Odorless and tasteless.
- Amber oily liquid; slow to evaporate (evaporates at about the same rate as motor oil).
- Because it evaporates so slowly, VX persists on objects for days to months.
- The most potent nerve agent, it is much more toxic than sarin. A tiny droplet of liquid VX, about the size of the head of a pin, is lethal in 50% of patients.

Transmission

- Primarily a contact hazard, VX may be inhaled or absorbed through skin and mucous membranes. May also be ingested.
- Disbursed by spraying, aerosolizing, mixing with water, or misting so that it settles on objects.

Symptoms and Course

- Liquid on skin:
  - Very small drop – nausea, vomiting, diarrhea in minutes to hours.
  - Small drop – convulsions, flaccid paralysis, breathing stops within minutes.
  - Large drop – convulsions, collapse, death in seconds to minutes.
- Inhaled vapor:
  - Small amount – small pupils, runny nose, increased salivation, shortness of breath, tightness in chest, cough within seconds.
  - Large amount – loss of consciousness, convulsions, flaccid paralysis, breathing stops, heart stops within seconds to 1 minute.

EMS Issues

- Recognized through symptoms, clusters of affected patients, or report after testing.
- Only a slight difference between a fatal dose and a dose that produces more mild health effects
- Treatment mostly supportive.
- Effects may be reversed with Atropine and Pralidoxime (2-PAM).

Protective Measures

- PPE at Level B or better is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present.
- PPE at Level C or above is necessary to treat victims who have been decontaminated. Chemical-resistant gloves are mandatory for any contact with exposed skin or clothing.

Decontamination

- Water alone is not effective for decontamination. Individuals exposed to VX should wash thoroughly with bleach or soapy water.
- Decontamination for those contaminated with liquid VX consists of removing contaminated clothing and washing victims with household bleach and copious amounts of water.
- Clothing exposed to VX vapor or mist can continue to release VX for hours and should be double bagged in plastic bags at the scene.

Further Information

- Centers for Disease Control and Prevention Public Response Hotline (CDC)

  English (888) 246-2675

  Español (888) 246-2857

  TTY (866) 874-2646
- Agency for Toxic Substances and Disease Registry (ATSDR) (1-888-422-8737)

CHEMICAL AGENTS: TABUN

Overview

- A nerve warfare agent.
- Also called GA.
- May form hydrogen cyanide in some situations.
- Colorless to brown liquid.
- Odorless in pure form, faintly fruity odor occasionally.
- Soluble in most organic solvents; poorly soluble in water.
- Vaporizes if heated.
- If inhaled, tabun is about half as toxic as sarin.
- Quite persistent, half-life of 24-36 hours on soil.

Transmission

- Both a contact and a vapor hazard, may be inhaled or absorbed through skin and mucous membranes. May also be ingested.
- Most transmission is by contact with liquid or mist.

Symptoms and Course

- Liquid on skin:
  - Very small drop – nausea, vomiting, diarrhea in minutes to hours.
  - Small drop –convulsions, flaccid paralysis, breathing stops within minutes.
  - Large drop – convulsions, collapse, death in seconds to minutes.
- Inhaled vapor:
  - Small amount – small pupils, runny nose, involuntary urination and defecation, increased salivation, shortness of breath, tightness in chest, cough within 2-5 minutes.
  - Large amount – loss of consciousness, convulsions, flaccid paralysis, breathing stops, heart stops within minutes-hours.

EMS Issues

- Recognized through symptoms, clusters of affected patients, or report after testing.
- Only a slight difference between a fatal dose and a dose that produces more mild health effects.
- Treatment mostly supportive.
- Effects may be reversed with Atropine and Pralidoxime (2-PAM).

Protective Measures

- PPE at Level B or better is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present.
- PPE at Level C or above is necessary to treat victims who have been decontaminated. Chemical-resistant gloves are mandatory for any contact with exposed skin or clothing.

Decontamination

- Decontamination for those not wet with liquid (inhaled vapor only) consists of fresh air, removal of contaminated clothing, and washing hair with high-volume, low-pressure water. Soap and water speeds this process. Clothing can continue to release tabun vapor for about 30 minutes.
- Decontamination for those wet with liquid consists of complete removal of clothing and washing victims with household bleach and copious amounts of water.

Further Information

- Centers for Disease Control and Prevention Public Response Hotline (CDC)
  - English (888) 246-2675
  - Español (888) 246-2857
  - TTY (866) 874-2646
- Agency for Toxic Substances and Disease Registry (ATSDR) (1-888-422-8737)

CHEMICAL AGENTS: SOMAN

Overview

- A nerve warfare agent.
- Also called GD or, if thickened, TGD.
- May form hydrogen gas in some situations, creating an explosion risk.
- Colorless to brown liquid.
- Faintly fruity odor in pure form, camphor odor and brown with impurities.
- Soluble in most organic solvents; can be mixed with water but poorly soluble in water.
- Vaporizes if heated.
- Soman is about as toxic as sarin if inhaled.
- Fairly persistent, longer than sarin but not as long as tabun.

Transmission

- Both a contact and a vapor hazard, may be inhaled or absorbed through skin and mucous membranes. May also be ingested.
- Most transmission is by contact with liquid or mist.

Symptoms and Course

- Liquid on skin:
  - Very small drop or amount – nausea, vomiting, diarrhea in minutes to hours.
  - Small drop or amount –convulsions, flaccid paralysis, breathing stops within minutes.
  - Large drop or amount – convulsions, collapse, death in seconds to minutes.
- Inhaled vapor:
  - Small amount – small pupils, runny nose, involuntary urination and defecation, increased salivation, shortness of breath, tightness in chest, cough within 2-5 minutes.
  - Large amount – loss of consciousness, convulsions, flaccid paralysis, breathing stops, heart stops within minutes to hours.

EMS Issues

- Recognized through symptoms, clusters of affected patients, or report after testing.
- Only a slight difference between a fatal dose and a dose that produces more mild health effects.
- Treatment mostly supportive.
- Effects may be reversed with Atropine. Because soman “ages” rapidly (within two minutes) when it binds to

cholinesterase molecules, Pralixomine (2-PAM) may not be effective.

- Benzodiazepines both stop and prevent seizures and subsequent neurological damage.

Protective Measures

- PPE at Level B or better is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present.
- PPE at Level C or above is necessary to treat victims who have been decontaminated. Chemical-resistant gloves are mandatory for any contact with exposed skin or clothing.

Decontamination

- Decontamination for those not wet with liquid (inhaled vapor only) consists of fresh air, removal of contaminated clothing, and washing hair with high-volume, low-pressure water. Soap and water speeds this process. Clothing can continue to release tabun vapor for about 30 minutes.
- Decontamination for those wet with liquid consists of complete removal of clothing and washing victims with household bleach and copious amounts of water.

Further Information

- Centers for Disease Control and Prevention Public Response Hotline (CDC)
  - English (888) 246-2675
  - Español (888) 246-2857
  - TTY (866) 874-2646
- Agency for Toxic Substances and Disease Registry (ATSDR) (1-888-422-8737)
- http://www.bt.cdc.gov/agent/Nerve/Soman/ctc0004.asp

CHEMICAL AGENTS: BOTULINUM TOXIN

Overview

- Botulism is a muscle-paralyzing disease caused by the toxin made by a bacterium called *Clostridium botulinum*. An average of 110 cases of botulism are reported each year in the U.S. Of these, approximately 25% are foodborne, 72% are infant botulism, and the rest are wound botulism.
- Outbreaks of foodborne botulism involving two or more persons occur most years and usually caused by eating contaminated home-canned foods.
- Botulism toxin is the most potent lethal substance known to man (lethal dose 1mg/kg).
- Botulinum toxin has been developed as an aerosol weapon by several countries. No human data exist on the effects inhaling botulinum toxin, but it may resemble the foodborne syndrome.
- Spores of *C. botulinum* are found in soil worldwide. Terrorists with the technical capacity to grow cultures of the bacterium, and harvest and purify the toxin, could therefore use it as a bioterrorism agent.
- Contaminating food with botulinum toxin could cause a devastating event.
- Most patients eventually recover after weeks to months of supportive care.

Transmission

- *Botulinum* toxins can be produced in large quantities and may be disbursed by aerosol or used to contaminate food.
- May be ingested, inhaled, or absorbed through wounds.
- There are three main kinds of botulism:
  - Foodborne botulism occurs when a person ingests pre-formed toxin that leads to illness within a few hours to days. Foodborne botulism is a public health emergency because the contaminated food may still be available to other persons besides the patient.
  - Infant botulism occurs in a small number of susceptible infants each year who harbor *C. botulinum* in their intestinal tracts.
  - Wound botulism occurs when wounds are infected with *C. botulinum* that secretes the toxin
- Botulism is not spread from one person to another.
- Foodborne botulism can occur in all age groups.

Symptoms and Course

- With foodborne botulism, symptoms begin within 6 hours to 2 weeks (most commonly between 12 and 36 hours) after eating toxin-containing food.

- Symptoms of botulism include double vision, blurred vision, drooping eyelids, slurred speech, difficulty swallowing, and dry mouth.
- Muscle weakness from botulism always descends through the body: first shoulders are affected, then upper arms, lower arms, thighs, calves, etc.
- Paralysis of breathing muscles can cause a person to stop breathing and die, unless assistance with breathing (mechanical ventilation) is provided.
- In foodborne botulism, symptoms generally begin 18 to 36 hours after eating a contaminated food, but they can occur as early as 6 hours or as late as 10 days.

EMS Issues

- Recognized through classic symptoms, clusters of affected patients, or reporting from authorities that an incident has occurred.
- May occur naturally in small clusters due to consumption of improperly canned or stored foods, etc.
- Symptoms may overlap with symptoms of nerve agent exposure, but treatment is different.
- Treatment is mostly supportive.
- The CDC maintains a stock of botulism antitoxin for treatment. It must be requested through the state Department of Health. The antitoxin is effective in reducing the severity of symptoms if administered early in the course of the disease.

Protective Measures

- PPE at Level B or better is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present.
- Treatment of decontaminated patients requires universal precautions but no other special equipment.

Decontamination

- Susceptible to direct sunlight, heat, and most disinfectants (including bleach).
- Exposure to heat (80°C/176°F for 30 minutes or 100°C/212°F for 5 minutes) will inactivate the toxin.
- Exposed skin should be washed with soap and water.
- Reusable equipment should be cleaned with soap and water as well as with an appropriate disinfectant.
- Disposable equipment should be discarded in appropriate containers.

Further Information

- Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH)
- http://www.bt.cdc.gov/agent/botulism/factsheet.asp

CHEMICAL AGENTS: LEWISITE

Overview

- A type of chemical warfare agent called a vesicant or blistering agent, because it causes blistering of the skin and mucous membranes on contact.
- Also known as Agent L.
- Pure lewisite is a colorless, odorless oily liquid.
- May be dark brown and have a strong geranium odor when industrially produced.
- Lewisite vapor is heavier than air, so it will settle in low-lying areas.
- Lewisite remains a liquid under a wide range of environmental conditions, from below freezing to very hot temperatures. Therefore, it can last for a long time in the environment.

Transmission

- Both a contact and a vapor hazard, may be ingested, inhaled, or absorbed through the skin or mucous membranes.
- May be disbursed as a gas, released in water, or applied to food.

Symptoms and Course

- Immediate burning pain in contact area.
- Skin redness within 30 minutes, itching for 24 hours, blisters within 12 hours.
- Pain lasting 2-3 days.
- Deep skin burns.
- Permanent eye damage or blindness within 1 minute of contact.
- Profuse nasal secretions and violent sneezing.
- Cough with frothing material and lung edema.
- Systemic effects include weakness, hypothermia, hypotension, anemia, hemolysis, focal necrosis of liver and injury to intestine.

EMS Issues

- Symptoms may appear similar to nerve agent, but Lewisite causes pain and redness / blistering.
- Topical application of BAL (British Anti-Lewisite) deactivates lewisite locally.
- Patient care includes pain management and respiratory support.
- Strict attention must be paid to fluid and electrolyte replacement.
- Patients with large areas of blisters or erythema will require hospitalization.

Protective Measures

- PPE at Level B or better is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present. A barrier cream such as SERPACWA should also be used.
- Treatment of decontaminated patients requires universal precautions but no other special equipment is usually needed.

Decontamination

- Droplets of oily agent may be removed from skin by blotting and then cleansing with soap and water or decontamination solutions.
- Washing with household bleach (diluted 1:10) is recommended.

Further Information

- Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH)

  http://www.bt.cdc.gov/agent/lewisite/basics/facts.asp

  http://www.bt.cdc.gov/agent/lewisite/ctc0020.asp

CHEMICAL AGENTS: CHOKING AGENTS (PHOSGENE)

Overview

- Chemical agents that attack lung tissue, primarily causing pulmonary edema, are classed as lung damaging agents, or choking agents. This group includes: Phosgene (CG); Diphosgene (DP); Chlorine (Cl); and Chloropicrin (PS).
- Phosgene is typical of such agents and is:
  - The most dangerous member of this group and the only one considered likely to be used as a chemical warfare agent.
  - Used for the first time in 1915, and it accounted for 80% of all chemical fatalities during World War I.
  - Also used in commercial manufacturing.
  - A colorless gas under ordinary conditions of temperature and pressure.
  - Boiling point is 8.2°C, making it an extremely volatile and non-persistent agent.
  - Vapor density is 3.4 times that of air. It may, therefore, remain for long periods of time in trenches and other low-lying areas.
  - In low concentrations it has a smell resembling newly mown hay.

Transmission

- Normally disbursed as a gas, may also be released in water or applied to food.
- Primarily absorbed by inhalation, may also be ingested or absorbed through the skin or mucous membranes.

Symptoms and Course

- Massive pulmonary edema caused by lung damage, **probably not responsive to lasix.**
- Death may occur within several hours; in most fatal cases, pulmonary edema reaches a peak in 12 hours, followed by death in 24 to 48 hours.
- Initial symptoms include: coughing; choking; a feeling of tightness in the chest; nausea; and occasionally vomiting; headache and lacrimation (tearing). The presence or absence of these symptoms is of little value in immediate prognosis. Some patients with severe cough fail to develop serious lung injury; others with little sign of early respiratory tract irritation develop fatal pulmonary edema.
- A period follows during which abnormal chest sounds are absent and the patient may be symptom-free. This interval commonly lasts 2 to 24 hours but may be shorter. It is terminated by the signs and symptoms of pulmonary edema, which begin with cough (occasionally painful), dyspnea, rapid shallow breathing and cyanosis. Nausea

and vomiting may appear. As the edema progresses, discomfort, apprehension and dyspnea increase and frothy sputum develops.

- The patient may develop shock-like symptoms with pale, clammy skin, low blood pressure and feeble, rapid heartbeat.
- During the acute phase, casualties may have minimal signs and symptoms and prognosis should be guarded.
- If the casualty survives, resolution commences within 48 hours and, in the absence of complicating infection, there may be little or no residual damage.

EMS Issues

- Recognized by report of incident, symptoms, characteristic odor.
- No antidote available; treatment is entirely supportive.
- Diuretics should not be used as pulmonary edema is non-cardiac in origin. Fluid supplementation may be required due to massive fluid losses through the lungs.
- Delay in symptom onset requires observation of exposed patients for up to 6 hours.

Protective Measures

- Victims should be evacuated to well-ventilated area higher in elevation than the scene.
- PPE at Level B or better is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present.
- PPE at Level C or above is necessary to treat victims who have been decontaminated. Chemical-resistant gloves are mandatory for any contact with exposed skin or clothing.

Decontamination

- Phosgene decomposes to carbon monoxide and hydrochloric acid in the presence of moisture.
- Decontamination stations should be well-ventilated. Much of decontamination is accomplished by simple aeration.
- Contaminated clothing should be removed and the patient flushed with copious amounts of water. Further decontamination is not usually required except in very cold environments.

Further Information

- Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH)

  http://www.bt.cdc.gov/agent/cyanide/basics/facts.asp
  http://www.bt.cdc.gov/agent/cyanide/erc506-77-4.asp
  http://www.bt.cdc.gov/agent/cyanide/erc74-90-8.asp
  http://www.bt.cdc.gov/agent/cyanide/erc151-50-8.asp
  http://www.bt.cdc.gov/agent/cyanide/erc143-33-9.asp

CHEMICAL AGENTS: CYANIDE

Overview

- A chemical that acts as a cellular toxin, blocking cellular use of oxygen.
- Also known as AN and CK.
- Cyanide can be a colorless gas, such as hydrogen cyanide (HCN) or cyanogen chloride (CNCl), or a crystal form such as sodium cyanide (NaCN) or potassium cyanide (KCN).
- Cyanide sometimes is described as having a “bitter almond” smell, but it does not always give off an odor, and not everyone can detect this odor.
- Cyanide is released from natural substances in some foods and in certain plants such as cassava. Cyanide is contained in cigarette smoke and the combustion products of synthetic materials such as plastics.
- In manufacturing, cyanide is used to make paper, textiles, and plastics. It is present in the chemicals used to develop photographs. Cyanide salts are used in metallurgy for electroplating, metal cleaning, and removing gold from its ore. Cyanide gas is used to exterminate pests and vermin in ships and buildings.
- Many RI manufacturing companies, particularly those involved in metal plating, circuit board manufacture, and jewelry production, use cyanides.
- Cyanide is less dense than air and evaporates quickly, so it will rise and disperse quickly in open spaces.

Transmission

- Hydrogen cyanide gas may be intentionally disbursed as a chemical warfare agent. Because it evaporates quickly, cyanide is more likely to be released in confined spaces than outdoors.
- Exposure to cyanides can occur through inhalation, eating or drinking, or touching contaminated materials.

Symptoms and Course

- Brief or slight exposure: rapid breathing; restlessness; dizziness; weakness; headache; nausea and vomiting; rapid heart rate.
- Prolonged or large exposure: low blood pressure; slow heart rate; loss of consciousness; lung injury; respiratory failure leading to death.

EMS Issues

- The extent of poisoning caused by cyanide depends on the amount of cyanide a person is exposed to, the route of exposure, and the length of time that a person is exposed.
- Serious cyanide exposures cause death rapidly.

- Treatment is primarily oxygen and ventilation.
- Antidotes are available to reverse the toxic action of cyanide.
- No lab testing can be done in "real-time" to confirm cyanide poisoning.

Protective Measures

- PPE at Level B or higher (including SCBA) is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present.
- PPE at Level C or above necessary to treat victims who have been decontaminated. Chemical-resistant gloves are mandatory for any contact with exposed skin or clothing.

Decontamination

- Decontamination stations should be well-ventilated; because cyanide is highly volatile, it will dissapate quickly in air.
- Because cyanide is quickly absorbed through intact skin, decontamination of the patient is essential for the protection of other persons in contact with the patient.
- Contaminated clothing should be removed and the patient's skin flushed with large volumes of low-pressure water.

Further Information

- Regional poison control center (1-800-222-1222)
- Centers for Disease Control and Prevention Public Response Hotline (CDC)
  - English (888) 246-2675
  - Español (888) 246-2857
  - TTY (866) 874-2646
- Agency for Toxic Substances and Disease Registry (ATSDR) (1-888-422-8737)
- Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH), *Pocket Guide to Chemical Hazards* (http://www.cdc.gov/niosh/npg/npgd0000.html)
- http://www.bt.cdc.gov/agent/lung/cyanide/faq/index.asp

CHEMICAL AGENTS: RICIN

Overview

- A poison made from castor beans.
- Inhibits cellular protein synthesis.
- Can be formed into a powder, a mist, a pellet, or dissolved in water.
- Quite stable, and can withstand cold or hot temperatures.

Transmission

- Inhalation of mist or powder.
- Ingestion in food or water.
- Pellets can be injected into a victim.

Symptoms and Course

- Mass exposure to ricin is unlikely, but could occur with terrorist attack using mist or powder.
- **Inhalation:**
  - Coughing, tightness in the chest, difficulty breathing, nausea, and aching muscles within a few hours of exposure.
  - Pulmonary edema, cyanosis and death follow in several more hours.
- **Ingestion:**
  - GI bleed, vomiting, diarrhea within hours.
  - Renal and hepatic failure, death within days.
- **Injection:**
  - Local necrosis at the injection site.
  - Hepatic and renal failure.
  - Massive GI bleed, death from multi-system organ failure.

EMS Issues

- No prophylactic vaccination or antitoxin is currently available. Treatment is largely supportive.
- There are few if any immediate symptoms. Signs and symptoms of ricin toxicity develop within 4 to 8 hours depending on the amount and route of exposure.
- Exposure to an unknown powder could be mistaken for exposure to anthrax or other substances.
- Because of potential for delayed symptom onset, lack of immediate symptoms requires observation of those exposed.

Protective Measures

- PPE at Level C or higher is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present.
- Treatment of decontaminated patients requires universal precautions but no other special equipment is usually needed.

Decontamination

- Bleach, as well as soap and water, inactivates ricin.
- Equipment can be decontaminated following standard procedures. Disposable equipment should be decontaminated before it is discarded.

Further Information

- Regional poison control center (1-800-222-1222)
- Centers for Disease Control and Prevention Public Response Hotline (CDC)
  - English (888) 246-2675
  - Español (888) 246-2857
  - TTY (866) 874-2646
- Agency for Toxic Substances and Disease Registry (ATSDR) (1-888-422-8737)
- http://www.bt.cdc.gov/agent/ricin/faq/index.asp

CHEMICAL AGENTS: RIOT CONTROL AGENTS

Overview

- These agents include substances commonly referred to as tear gas, Mace®, riot gas, pepper spray, and CapStun®.
- Many are produced from naturally occurring spicy pepper products.

Transmission

- Direct contact with skin and mucous membranes after exposure to sprayed mist or contact with liquid.
- Re-exposure likely from touching hair, clothing etc. and then rubbing eyes.

Symptoms and Course

- Pain, tearing, rhinorrhea.
- Bronchospasm and shortness of breath (rare).
- Agitation and anxiety due to pain and/or circumstances surrounding the exposure.

EMS Issues

- Use in a confined space may contaminate multiple patients and cause panic.
- Symptoms resolve over 30-60 minutes

Protective Measures

- Victims should be evacuated to well-ventilated area higher in elevation than the scene.
- PPE at Level C or better is required to decontaminate patients or to enter a contaminated area where vapor or liquid is present. Chemical-resistant gloves are mandatory for any contact with exposed skin or clothing.
- Treatment of decontaminated patients requires universal precautions but no other special equipment.

Decontamination

- Decontamination stations should be well-ventilated.
- All contaminated clothing should be removed and placed in a sealed bag.
- Victim should be washed with copious amounts of soap and high-volume low-pressure water.
- Eyes may be rinsed with plain water for 10-15 minutes if needed. Exercise care to avoid washing additional material into eyes.

Further Information

- http://www.bt.cdc.gov/agent/riotcontrol/
- http://www.tscm.com/mace.html

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RADIOLOGIC EXPOSURE

Overview

- Radiation is a form of energy released from unstable (radioactive) atoms.
- "Background" radiation is normally encountered in the environment from:
  - Natural sources including: cosmic radiation; terrestrial sources (rocks, soil, etc.); and very small amounts of radioactive carbon and potassium in the body.
  - Man-made sources including: diagnostic radiology (e.g., x-rays); therapeutic radiology (such as used in treating cancer); fallout from weapons testing; and occupational exposure in various industrial and military applications.
- The three main forms of radiation are:
  - Alpha radiation and beta radiation consist of electrically charged particles that travel relatively short distances in air. Alpha radiation generally stopped by skin. Beta radiation will penetrate skin but can't usually reach internal organs. However, either can be dangerous if ingested or inhaled.
  - Gamma rays are a type of electromagnetic radiation similar to medical x-rays. Gamma rays are the most hazardous type of radiation from sources outside the body and can travel up to a mile in open air. All tissues and organs can be damaged by gamma rays.
- The amount of radiation received by the body is described by exposure and dose. These are measured in units called rems or sieverts (1 sievert = 100 rem). Scientists estimate that the average person in the United States receives a dose of about one-third of a rem per year.
- Radiation exposures may be acute or chronic:
  - Acute exposures: individuals are exposed to relatively large amounts of radiation over a short period of time. Usually results in observable effects such as radiation sickness or death. May also have long-term effects not seen for many years.
  - Chronic exposures: indivuals are exposed to relatively small amounts of radiation over a long period of time. Usually no immediate effects but long-term health effects may be observed after many years.

Transmission

- Radiologic emergencies may be caused by:
  - Transportation accidents (e.g., damage to containers carrying various types of radioactive material);
  - Nuclear power plant accidents;
  - Deployment of weapons by military or terrorist groups.
- Radiologic weapons include traditional nuclear explosive devices as well as improvised nuclear devices (IND) or radioactive dispersion devices (RDD). A RDD consists of radioactive material combined with a conventional explosive devices, commonly referred to as a "dirty bomb".
- Hazards from a radiologic emergency may include: explosion effects (flash, thermal and blast waves); initial nuclear radiation; and the longer-term hazard of nuclear fallout.

Symptoms and Course

- Biological effects of radiation are caused by ionization (removal of electrons from atoms in the body) causing damage to cells. Immediate and delayed biological effects of radiation occur when the body either improperly repairs the damage or is overwhelmed and can't repair the damage quickly enough.
- Severity and course depends on total dose received, how much of body is exposed, and the radiosensitivity of the individual exposed. Individuals may experience different effects from the same dose of radiation. Biological factors include age, sex, diet, body temperature, and underlying health.
- Symptoms encountered in an EMS setting will most likely be caused by large, short-term (acute) exposure to gamma radiation, causing Radiation Sickness recognized by:
  - Diarrhea, nausea, vomiting, high fever;
  - Swelling in the passages of the nose, mouth, and throat;
- Symptoms may appear shortly after exposure, then disappear for a few days only to reappear in a much more serious form after a week or so.
- Later symptoms may include malaise, fatigue, drowsiness, weight loss, abdominal pain, insomnia, restlessness, and skin blisters.
- Acute radiation doses greater than 1 Sv (100rem) can lead to Acute Radiation Sickness, recognized by:
  - Changes in blood cells and vessels;
  - Skin irritation or burns;
  - Gastrointestinal system effects;
  - Radiation sickness (diarrhea, nausea, vomiting, high fever);
  - Hair loss.
- Long-term effects may include cancer, cataracts, and overall life-shortening.

EMS Issues

- Treatment is entirely supportive.
- Exposure to radioactive energy in the form of waves does not cause contamination. However, contact with radioactive material requires decontamination.
- Once separated from the radiation source (and decontaminated, if needed), an exposed individual is generally not radioactive, unless they have ingested quanties of radioactive material.
- Presence of radiation in an environment, or contamination on a patient, can be measured with a Geiger counter.
- Seriously injured people should be removed from the source of radiation, stabilized, and sent to hospitals first.
- Uninjured people near the event should be detained until they can be checked for radioactive contamination.
- Record-keeping is critical to the long-term health monitoring of exposed individuals.

Protective Measures

- The three key factors in protecting individuals from radiation are:
  - Time: the less time an individual remains near a radiation source, the lower the total radiation dose;
  - Distance: the further an individual remains from the radiation source, the lower the total radiation dose;
  - Shielding: the more material between an individual and a radiation source, the lower the total radiation dose.
- Protective measures include protection against inhalation, ingestion, or absorption of radioactive material. Personal protective equipment should include respiratory precautions (minimum full face mask with HEPA filter) and loose-fitting clothes that cover as much of the body's surface as possible. Level C PPE is adequate for this purpose but will not provide protection against radiation in the form of energy waves.
- Open wounds and abrasions must be protected from radioactive contamination.
- Avoid eating, drinking, or smoking while exposed to potentially radioactive dust or smoke. If drinking is absolutely necessary, only drink water from a canteen or other closed container.

Decontamination

- Decontamination consists of removing any radioactive material or dust from victim's skin.
  - Remove all clothing, jewelry, etc. and discard.
  - Wash victims with large volumes of low-pressure water.

Further Information

- Centers for Disease Control (CDC)
  http://www.bt.cdc.gov/radiation/casualtiesradioactive.asp
- Federal Emergency Management Agency (FEMA)
  http://www.training.fema.gov/EMIWeb/IS/is3.asp

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PERSONAL PROTECTIVE EQUIPMENT

All-Hazards Approach

Personal Protective Equipment (PPE) ensembles intended to protect the wearer in various circumstances have been defined by the EPA and regulations promulgated by NIOSH and OSHA, among others. These ensembles range from Levels A through D, with decreasing protection as the type and amount of equipment decreases. Each increase in level of protection requires time, training, and access to equipment for the EMT at the scene. A balance between protection and duty to care for patients must be reached for each situation. Information used to make these decisions includes the apparent exposure level and the apparent victim symptoms and severity. Follow directions from Incident Command regarding the proper PPE for incident operations.

The highest level of hazard exposure exists where there is active dissemination of the hazardous substance at the scene. This may be a leaking truck container, a terrorist device spraying a gas or biohazard powder, or a puddle of hazardous material on a factory floor.The concentration of hazardous substance decreases with increased ventilation, depending on factors such as density of the substance (Is it heavier than air? Is it a mist that settles to the ground? Will it rapidly dissolve or rise into the atmosphere?), wind speed and direction, etc. Only some of these factors will be immediately apparent as EMTs arrive at the scene.

Perhaps the best guide regarding immediate effects of a hazardous material will be the condition of victims. For example, victims with blistering skin rashes suggest that the material is a blistering agent and that skin protection (encapsulating suits at Level A or B) is indicated. Victims with mild respiratory symptoms in a well-ventilated outdoor environment may possibly be approached using Level C ensembles once the situation is deemed not immediately dangerous to life or health (IDLH). Precautions include the knowledge that delayed effects may exist and cannot be judged from initial victim symptoms.

While specific PPE recommendations are available for particular hazards, it is rare that the EMT will know, with certainty, the hazards at a scene upon arrival. Therefore, the EMT should have available, and should use, an approach that protects against all reasonably potential scene hazards. This all-hazards approach involves three components:

- EMT behavior;
- Respiratory equipment;
- Other equipment.

EMT Behavior

EMT behavior should include the following:

Maintain an awareness regarding materials and biologic hazards, violence or weapons risks, environmental hazards and the potential for secondary hazards (delayed terrorist attacks, unstable vehicles or structures, etc.) during approach to ALL scenes. Consider approach routes (from upwind, for example) during response. Assess scene safety upon arrival and again prior to entering any building, vehicle, or structure. Report safety situation to others as indicated and obtain consultation regarding actions as indicated. Withdraw from any position that presents an unmanageable hazard to the EMT.

Respiratory Equipment

All EMTs should wear masks providing NIOSH 95 or higher protection while in any environment that presents a risk of airborne infectious disease spread. All EMTs should wear approved eye protection in any situation where bodily fluid contamination through splash is a risk. All EMTs should don a PPE ensemble at Level C or higher in any situation where there is reason to suspect need for respiratory protection against chemical agents in an environment deemed **not** immediately dangerous to life or health by Incident Command. This level of protection does NOT protect the EMT sufficiently for entry into a contaminated environment (i.e., the “hot zone”). All trained EMTs should don PPE ensemble at Level B or A prior to entering any hazardous environment defined as a structure or situation where continued contamination is likely. Follow directions given by HAZMAT Teams and/or Incident Command.

Other Equipment

All EMTs should wear non-latex medical gloves for all patient care and contact. All EMTs should cover the above gloves with chemical resistant gloves for any patient care or contact where Level C PPE is indicated. Clothing necessary to protect against rescue/extrication conditions, environmental elements, such as vehicular fuels and fluids, cold and/or wet weather, falling debris, or head strike hazards should be worn when indicated.

EPA Protection Levels

LEVEL A:

- Vapor protective suit (meets NFPA 1991)
- Pressure-demand, full-face SCBA
- Inner chemical-resistant gloves, chemical-resistant safety boots, two-way radio communication
- *OPTIONAL:* Cooling system, outer gloves, hard hat
- *Protection Provided:* Highest available level of respiratory, skin, and eye protection from solid, liquid and gaseous chemicals.

- *Used When:* The chemical(s) have been identified and have high level of hazards to respiratory system, skin and eyes. Substances are present with known or suspected skin toxicity or carcinogenesis. Operations must be conducted in confined or poorly ventilated areas.
- *Limitations:* Protective clothing must resist permeation by the chemical or mixtures present. Ensemble items must allow integration without loss of performance.

LEVEL B:

- Liquid splash-protective suit (meets NFPA 1992)
- Pressure-demand, full-face piece SCBA
- Inner chemical-resistant gloves, chemical-resistant safety boots, two-way radio communications
- Hard hat
- *OPTIONAL:* Cooling system, outer gloves
- *Protection Provided:* Provides same level of respiratory protection as Level A, but less skin protection. Liquid splash protection, but no protection against chemical vapors or gases.
- *Used When:* The chemical(s) have been identified but do not require a high level of skin protection. Initial site surveys are required until higher levels of hazards are identified. The primary hazards associated with site entry are from liquid and not vapor contact.
- *Limitations:* Protective clothing items must resist penetration by the chemicals or mixtures present. Ensemble items must allow integration without loss of performance.

LEVEL C:

- Support Function Protective Garment (meets NFPA 1993)
- Full-face piece, air-purifying, canister-equipped respirator
- Chemical resistant gloves and safety boots
- Two-way communications system, hard hat
- *OPTIONAL:* Face shield, escape SCBA
- *Protection Provided:* The same level of skin protection as Level B, but a lower level of respiratory protection. Liquid splash protection but no protection to chemical vapors or gases.
- *Used When:* Contact with site chemical(s) will not affect the skin. Air contaminants have been identified and concentrations measured. A canister is available which can remove the contaminant. The site and its hazards have been completely characterized.

- *Limitations:* Protective clothing items must resist penetration by the chemical or mixtures present. Chemical airborne concentration must be less than IDLH levels. The atmosphere must contain at least 19.5% oxygen.
- Not Acceptable for Chemical Emergency Response

LEVEL D:

- Coveralls, safety boots/shoes, safety glasses or chemical splash goggles
- *OPTIONAL:* Gloves, escape SCBA, face-shield
- *Protection Provided:* No respiratory protection, minimal skin protection.
- *Used When:* The atmosphere contains no known hazard. Work functions preclude splashes, immersion, potential for inhalation, or direct contact with hazard chemicals.
- *Limitations:* This level should not be worn in the Hot Zone. The atmosphere must contain at least 19.5% oxygen.
- Not Acceptable for Chemical Emergency Response